

C O U N C I L C O M M U N I C A T I O N

TO: THE CITY COUNCIL


COUNCIL MEETING DATE: APRIL 5, 1989

FROM: THE CITY MANAGER'S OFFICE

SUBJECT: DRAFT ENVIRONMENTAL IMPACT REPORT - INDUSTRIAL SUBSTATION

INDICATED ACTION: Receive for review the Draft Environmental Impact **Report** (DEIR) *for* the Industrial Substation proposed for the south side of the Central California Traction right-of-way (adjacent *to* East Lodi Avenue), east of a line extending Cluff Avenue.

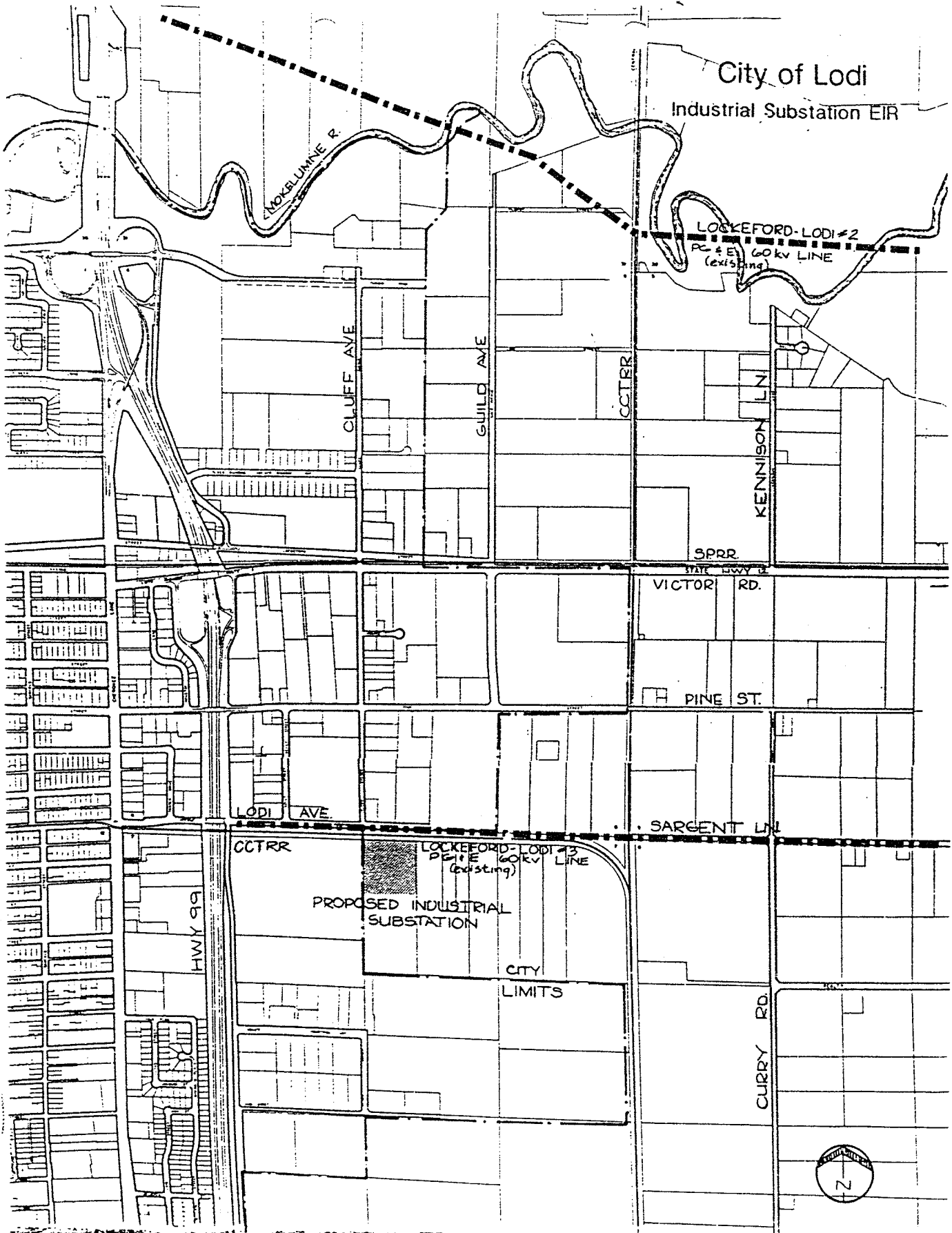
If the document **is** not available at the time the agenda packet **is delivered**, **it** will be presented at the Council meeting.



JAMES B. SCHROEDER
Community Development Director

Attachment

City of Lodi
Industrial Substation EIR



State of California

OFFICE OF PLANNING AND RESEARCH

1400 Tenth Street, Room 121
Sacramento, CA 95814



NOTICE OF COMPLETION FORM

Project Title CITY OF LODI INDUSTRIAL SUBSTATION DRAFT EIR			
Project Location—Specific Northeast Lodi. Mokelumne River south to Industrial Way, Cluff Avenue east to Tecklenberg Road.			
Project Location—City Lodi		Project Location—County San Joaquin	
Description of Nature, Purpose, and Beneficiaries of Project The City of Lodi is proposing to construct a new 60Kv electrical substation to be located in the industrial area east of the City. The substation will occupy a portion of a yet to be selected 10-acre site south of Lodi Avenue. The substation will also require a new 60Kv line connecting the substation to an existing P.G. & E. 60Kv line along the Mokelumne River.			
Lead Agency City of Lodi		Division Electric Utility Department Henry Rice, Director	
Address Where Copy of EIR is Available City of Lodi Community Development Department City Hall, 221 West Pine Street, Lodi, CA			
Review Period 30 days ending May 10, 1989			
Contact Person David Morimoto	Area Code (209)	Phone 333-6711	Extension
Associate Planner			

Revised January 1985

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Contact Person	Area Code	Phone	Extension
David Morimoto	(209)	333-6711	
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Revised January 1985

Project No.: 1345
copy No.: _____
issued To: _____

DRAFT
ENVIRONMENTAL IMPACT REPORT
FOR
THE CITY OF LODI

INDUSTRIAL SUBSTATION
PROJECT
(SCH #8901301Q)

APRIL 1989

FOR INFORMATION REGARDING
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1400 Tenth Street, Room 121
Sacramento, CA 95814

NOTICE OF COMPLETION FORM

Project Title

CITY OF LODI INDUSTRIAL SUBSTATION DRAFT EIR

Project Location—Specific

Northeast Lodi. Mokelumne River south to Industrial Way, Cluff Avenue east to Tecklenberg Road.

Project Location—City

Lodi

Project Location—County

San Joaquin

Description of Nature, Purpose, and Beneficiaries of Project

The City of Lodi is proposing to construct a new 60Kv electrical substation to be located in the industrial area east of the City. The substation will occupy a portion of a yet to be selected 10-acre site south of Lodi Avenue. The substation will also require a new 60Kv line connecting the substation to an existing P.G. & E. 60Kv line along the Mokelumne River.

Lead Agency

City of Lodi

Division

Electric Utility Department
Henry Rice, Director

Address Where Copy of EIR is Available

City of Lodi Community Development Department

City Hall, 221 West Pine Street, Lodi, CA

Review Period

30 days ending May 10, 1989

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Revised January 1985

Project No.: 1345
Copy No.:
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DRAFT
ENVIRONMENTAL IMPACT REPORT
FOR
THE CITY OF LODI

INDUSTRIAL SUBSTATION
PROJECT
(SCH #89013010)

APRIL 1989

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PRINTED FOR

APR 04 1989

APPROVAL

TABLE OF CONTENTS

	Page
1.0 Summary	1
1.1 introduction	1
1.2 Purpose and Need	1
1.3 Alternatives	3
1.3.1 No Project	4
1.3.2 Alternative Technologies	4
1.3.3 Energy Conservation	5
1.3.4 Substation Site Alternatives	6
1.3.5 Transmission Line Route Alternatives	8
1.4 Significant Effects and Proposed Mitigation	10
1.5 Areas of Controversy	13
1.6 issues to be Resolved	13
1.7 Environmentally Preferred Route	13
 2.0 Project Description	 14
2.1 History	14
2.2 Description of the Proposed Action	14
2.2.1 Action and Benefits	14
2.2.2 Technical Characteristics	16
2.2.3 Project Cost	18
2.2.4 Intended Use of EIR	19
 3.0 Routing and Siting Analysis Approach	 23
3.1 General	23
3.2 Route Evaluation Criteria	26
3.2.1 Link/Site Development	25
3.2.2 Link/Site Inventory and Scoring	26
3.2.3 Route and Site Scoring	27

4.0	Environmental Concerns and Impacts	30
4.1	Environmental Setting	31
4.2	Flora and Fauna	32
	Inventory	32
	impacts and Mitigating Measures	32
4.2.1	Threatened and Endangered Species	33
	Inventory	33
	Impacts and Mitigating Measures	33
4.3	Soils	33
	Inventory	33
	Impacts and Mitigating Measures	33
4.4	Floodplains and Wetlands	34
	inventory	34
	impacts and Mitigating Measures	34
4.5	Geology and Seismicity	34
	inventory	34
	Impacts and Mitigating Measures	35
4.6	Air Quality	35
	Inventory	35
	Impacts and Mitigating Measures	36
4.7	Noise	36
	Inventory	36
	Impacts and Mitigating Measures	37
4.8	Electrical and Magnetic Field Effects	37
	Inventory and Historical Perspective	37
	Impacts and Mitigating Measures	38
4.9	Visual Resources	38
	Inventory	38
	impacts and Mitigating Measures	39
4.10	Cultural Resources	40
	inventory	40
	Impacts and Mitigating Measures	40
4.11	Socio-economic and Community Resources	40
	Inventory	40
	Impacts and Mitigating Measures	41
4.12	Land Use	41
	Inventory	41
	Impacts and Mitigating Measures	42

5.0	Evaluation of Alternate Routes & Sites	42
5.1	Comparison of Alternate Routes	42
5.1.1	Preferred Route = Route 1	43
5.1.2	Alternate Route 2	47
5.2	Comparison of Substation Sites	48
5.2.1	Substation Option SS-1	49
5.2.2	Substation Option SS-2	49
6.0	Environmental Consequences	49
6.1	Significant and Unavoidable Environmental Effects	49
6.2	Mitigation Measures Proposed to Minimize the Environmental Effects	50 50
6.3	The Relationship Between Local Short-term Uses of Man's Environment and the Maintenance and Enhancement of Long-term Productivity	50 50
6.4	Significant Irreversible Environmental Changes and Commitment of Resources	51
6.5	Growth Inducing Impacts	52

References

Appendices

1. Route & Site Evaluation Criteria Definitions
2. Route & Site Evaluation Worksheets
3. Staff and Public Notification
4. Agencies Consulted and **Responses**
5. Public Comment and Responses
6. Routing Map

**CITY OF LODI
INDUSTRIAL SUBSTATION PROJECT
DRAFT
ENVIRONMENTAL IMPACT REPORT**

1.0 SUMMARY

1.1 INTRODUCTION

The City of Lodi (City), which owns and operates the electrical system serving the City, is proposing to construct a new electrical substation and related **60kV** lines. The project, if approved and implemented, would consist of a new **60kV** substation, the "Industrial Substation," to be located on approximately ten acres within a present industrial area immediately east of Lodi. A new **60KV** line, approximately **1.6** miles in length, would tap the existing Pacific Gas and Electric (PG&E) **Lockeford-Lodi No. 2** line and extend to the new substation. Modifications to existing PG&E **60kV** lines and City **12kV** and **60kV** lines would provide ties from the facility to existing substations owned by (PG&E) and the City. Underground **12kV** feeders would tie the facility to the existing City distribution network. The project would be financed entirely by the City of Lodi.

This document was prepared pursuant to the California Environmental Quality Act (**CEQA**) CA PRC Sec. **21000**. No initial study was conducted preceding this document. The project EIR Notice of Preparation was filed by the City with the California State Office of Planning and Research on January 25, 1989.

1.2 PURPOSE AND NEED

The City receives power from PG&E's Lodi Substation, located adjacent to the City's Killelea Substation, over a single **60kV** circuit. From the Killelea Substation, power is distributed at **60kV** to McLane and Henning Substations, located along the **60kV** loop around the City. Each of the

City's three substations serve nearby customers over 12kV distribution feeders.

The need for the project is based on the following:

- With the high summer peak load of 1988, current on the 60kV bus at Killelea reached 90% of the 60kV bus capacity. This **60kV** bus is supplied by **PG&E** over a single 60kV circuit, and is the **sole** source of power to the City. Additional 60kV bus capacity is needed to relieve the loading on the existing bus.
- 1) In addition, maintenance activities on the 60kV bus can only be performed with the bus de-energized. De-energization of the 60kV bus would result in a complete outage to the City, or necessitate construction of a temporary 60kV bypass circuit, a difficult task due to the **lack** of space at the Killelea Substation. This situation has resulted in very infrequent maintenance on the 60kV bus.
- The 12kV distribution feeders at Killelea emanate from 60/12kV transformers and metalclad switchgear lineup. A fire or electrical problem in the switchgear would cause a complete and lengthy outage of the Killelea 12kV Substation while repairs were completed. Additionally, an outage to the 60kV bus to expedite repairs would be likely. **As a** result of the electrical load growth experienced within the City's electrical system, it is no longer possible to pick up all of the Killelea 12kV load from Henning and McLane Substations during an outage of the Killelea 12kV. Additional 12kV capacity is required on the east side of Lodi to accomplish this. Therefore, additional 60kV and 12kV substation facilities, and 60kV transmission lines are required on the east side of Lodi to correct these problems.

Construction of the proposed Industrial Substation project would allow the City to reinforce deficient portions of their electrical system, and provide a firm, reliable electrical supply to its customers. Specifically the project as conceived would:

- increase reliability of service to the entire City **by** providing three **60kV** circuits for delivery of power to the City from PG&E, rather than just **one** as in the present situation.
- Provide a higher capacity, dual **60kV** substation **bus** arrangement, so that maintenance activities can be performed without interrupting power to the entire City, or any portion thereof.
- Provide additional **12kV** capacity on the east side of Lodi, **so** that all electrical load can be served during an outage of the Killelea Substation during the peak load season.

Construction of the proposed project would fulfill the stated need.

1.3 ALTERNATIVES

The selection and discussion of alternatives considers informed decision making on the part of the Lead Agency, other affected agencies and jurisdictions, and the public. Therefore, this EIR did not consider an alternative whose effect cannot be reasonably ascertained and whose implementation is remote and speculative.

The assessment of the proposed action considers the following alternatives:

- A. No Project
- B. Alternative Technologies
- C. Energy Conservation
- D. Substation Site Alternatives
- E. Transmission Line Route Alternatives

1.3.1 No Project

By maintaining the status quo, the City would continue with its existing single circuit energy source, high risk of outages, and difficult maintenance conditions. Therefore, the City **would** have no capability to increase power supply capacity or improve reliability.

The No Project alternative is not considered a viable alternative action for meeting the stated need.

1.3.2 Alternative Technologies

Available technologies for meeting increased demand would include the installation of City-owned thermal generation within, or immediately adjacent to the City. The high capital investment **and** potentially adverse environmental effects, as well **as** the inherent increase in cost to rate payers, combine to preclude this option from consideration.

An additional alternate technology to be considered for the 60kV transmission line is that of underground construction. Although there has been underground construction of transmission systems in the United States since the late 1920s for lower voltage distribution lines and some high voltage (HV) systems, most HV systems (greater than or equal to 60kV) have been constructed in areas where overhead lines were not an option such as short sections in central-city locations. It is important to note that technological requirements for underground HV transmission lines are markedly dissimilar from those for lower voltage distribution lines. Undergrounding of HV transmission lines is vastly more complex and costly, primarily because of problems associated with dissipating cable heat. Design parameters and other restrictions combine to limit the use and application of underground transmission systems.

The basic cost of undergrounding a **60kV** line would be at least four to ten times the cost of building an overhead line. While underground lines are relatively **unaffected** by weather conditions, they remain vulnerable to leaks, dig-ins, washouts, seismic events, and cooling-system failures. **As** this line would represent a primary source to the City, outages of long duration would be unacceptable.

The principal environmental benefit of undergrounding a transmission system is the reduction ~~of~~ adverse visual and aesthetic impacts (although ancillary facilities on, or adjacent to the right of way would be visible). . However, the proposed line would be constructed in an industrial area where overhead utilities are commonplace, and frequently support multiple uses such as local electric distribution lines and communications cables on the same pole. On balance, the environmental benefits of undergrounding do not appear to outweigh the adverse impacts.

There are no alternative technologies or substitutions for substation construction.

1.3.3 Energy Conservation

The City Electric Utility Department has instituted a variety of energy conservation programs. Load Management studies are being conducted that provide customers with computer models of their energy **use** pattern. These data are used to aid the customer in determining options for more efficient energy use and a subsequent decrease in their demand charges. The reduction in customer demand due to load management ultimately reduces the City's demand and cost of power purchases. Through load control, the City has a goal to achieve a 6 megawatt reduction by 1992.

Conservation and load management recommendations are provided to customers through an energy audit program.

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The Electric Utility Department has conducted energy audits of city facilities and has initiated the installation of high efficiency lighting in public facilities and in the City's street lights.

In order to detect and correct inefficient equipment, the Electric Department has conducted infra-red scanning of their lines and substations.

The "Pull the Plug" public awareness load management program is in effect during the air conditioning season to bring down the 1-7 p.m. load during the hottest days of the months.

These conservation measures reflect responsible Electric Department management. However, the City's purpose as stated is not to reduce energy consumption through the proposed action, but to provide reliability for the base load. Because energy conservation can affect energy demand, but not provide the means of providing reliability and appropriate distribution of electric power, conservation cannot be considered as an alternative action for meeting the project purposes.

1.3.4 Substation Site Alternatives

The criteria for suitable substation sites include developed or planned street access; ease of access to existing PG&E and City **60kV** circuits and City distribution circuits; suitable parcel size (preferably 10 acres); and central to industrial loads. Several sites meeting these criteria are found within an area bounded by Pine Street on the north, Industrial Way on the south, Central California Traction Railroad (CCTCo) on the east, and Highway 99 on the west. Portions of this area are outside the City limits. The area within the City limits is zoned Heavy Industrial (M-2). Those portions of the study area that are outside the City limits are zoned Interim Protected Agriculture (**I-PA**) or Limited Manufacturing (M-1). The proposed facilities are permitted uses within the I-PA zoning designation as described in the September

9, 1988, revision of the San Joaquin County Ordinance Code Section 9-3200.8 Civic Use Types, Part (k).

Pipelines and Utilities Major. Large scale facilities used in the transmission of electricity, liquids, or gas. Typical uses include electric or natural gas transmission lines and substations, and petroleum pipelines;

Two alternative substations sites were considered: **SS-1**, located at the southeast corner of Cluff Avenue and Lodi Avenue.; and **SS-2**, located on the south side of the CCTCo from the future intersection formed by the extensions of Lodi Avenue and Guild Avenue.

Both sites are currently vineyards. The entire tract is immediately adjacent to PG&E's Lockeford-Lodi #3 60kV circuit, and also intersects the proposed new 60kV line. Being farther east of city facilities than **SS-1**, development of **SS-2** would require additional line lengths to connect the substation with existing City lines. **SS-2** is not directly served by a City street.

An alternative substation action considered, but rejected, was to expand the existing Killelea Substation. This alternative would not increase the number of delivery circuits, and would therefore only partially satisfy the stated need. Because of the lack of vacant land adjacent to this facility, any expansion would impose severe impacts upon the surrounding neighborhood. For these reasons, this alternative was not considered for further study.

1.3.5 Transmission Line Route Alternatives

Transmission line routing alternatives were considered based upon their ability to satisfy the project purpose and need, and the City's routing criteria as follows:

- Avoid excessive impacts upon agricultural lands.
- Utilize existing access.
- Minimize routing through areas of congested development.
- Avoid areas representing engineering hazards or requiring costly design measures.
- Minimize the line length.
- Avoid areas of critical environmental concern.

Construction of project facilities is scheduled to begin in January 1990 with completion by May 1990. Facilities planners generally assign a project life of 35-50 years for high voltage facilities.

Preliminary screening of potential alternative routes was conducted to determine areas of substantial conflict based upon environmental concerns, obvious potential public and agency opposition, and inability to conform substantially with the primary routing criteria. Two routing alternatives were identified from the preliminary screening process. The routes, shown on the project map (Appendix 6) are: Route 1 and Route 2.

Route 1 consists of links 1.1, 1.2, 1.3, 1.4, 1.5, 1.6. This route would tap the PG&E Lockeford-Lodi No. 2 line near the northeast corner of the Guild Winery. From the tap point the route extends along the west side of the CCTCo for approximately 2,720 feet to a field edge road. A portion of this section would be underbuilt with

■
existing distribution that serves a City pump. A young cherry orchard is located on the west side of this section near the north end. Vineyards are found along the west side of the CCTCo adjacent to the southern end. Turning west, the route extends along the field road to Guild Avenue. A portion of this section would be underbuilt with distribution to serve a private pump east of Guild Avenue.

A route following Guild Avenue from the northwest corner of the Guild Winery to Highway 12 was also examined. However, beginning approximately 700 feet north of Highway 12 and extending north approximately 1300 feet, significant portions of Guild Avenue are bordered by King Palm, Eucalyptus, and Oak trees. Placing a 60kV line along the street would require severe pruning and possible removal of trees. As that impact was considered unacceptable, this alternative was rejected from further consideration.

An additional alternate to this section would have continued south along the CCTCo across Highway 12. However, sufficient conductor to building clearance is restricted by two buildings making this alternative undesirable.

Turning south on Guild Avenue, the route traverses to the future extension of Lodi Avenue, crosses to the south side of the CCTCo, turns west and extends to either SS-1 or SS-2. This route section passes Dart Container Corp. and active vineyards on either side of the future extension of Guild Avenue. From Pine Street south to the future extension of Lodi Avenue, the Lodi Cemetery is on the east and vacant land on the west. However, the land on the west has been platted for small, zero setback industrial lots to be developed as Griffin industrial Park. Vineyards are again encountered between the south side of Lodi Avenue and the north side of CCTCo.

Route 2, consists of links 2.1, 2.2, **2.3 2.4, 1.5, 1.6**. This alternative would tap the PG&E Lockeford-Lodi No. 2 **60kV** line at a point near the Mokelumne River, approximately 1,200 feet northeast of the end of Kennison Lane. From the tap point, the route traverses row crops across the river's floodplain for approximately **1,120** feet. From the floodplain rim, the route continues south along a private farm road to Highway 12. This section traverses **lands** in vineyard on the west and currently vacant lands on the east. From Highway **12**, the route continues south along property lines through vineyards to the east end of Pine Street. Turning west on Pine Street, the route follows an existing distribution pole line to the northwest corner of the Lodi Cemetery. From that point, routes 1 and 2 would have the same alignment.

In addition to the above described **new 60kV** transmission line, three short sections of 60kV line would be constructed to link the proposed substation with the City's existing **60kV** loop. These line segments of approximately 1400, 1700, and 6900 feet respectively (7400 feet of which would be overbuild **of** existing **12kV** lines), would each be routed within the existing industrial area of the Lodi city limits. Each new segment would be routed to take advantage of linking sections of existing **12kV** lines.

An alternative route considered but rejected would have traversed Kennison Lane from a tap point near the river to Highway 12. **Because** of the perceived negative visual impact of the line upon the Kennison Lane neighborhood, coupled with the requirement to trim and possibly remove trees, this alternative was not considered for further study.

1.4 SIGNIFICANT EFFECTS AND PROPOSED MITIGATION

Environmental consequences of the proposed action and alternatives would be those residual impacts remaining subsequent to the process that has identified, evaluated, and integrated initial impacts with appropriate mitigation measures. That process involved assessing

impacts by comparing the proposed action with the pre-action environment, and determining mitigation that would avoid, reduce, or eliminate long term impacts.

Potential significant impacts were identified during routing studies and with discussions with City and County personnel. Additional comments on impact or issue identification were solicited from state and federal agencies through the filing of the project Notice of Preparation. Potentially significant impacts identified through this process were: effects upon agricultural activities; effects on existing orchards, shade, and ornamental trees; effects on existing residential areas; and overall visual impact of project facilities.

Perhaps the most significant potential impacts of those listed would be effects on agricultural patterns and practices, the line's presence in farm and residential areas relative to the visual effects, and the potential for tree removal to accommodate the right of way. In addressing the impact upon area agriculture, it is noted that the San Joaquin County General Plan discourages the unnecessary conversion of prime farm land to incompatible uses. The range of alternatives for the line route vary in their right of way requirement from 17.95 acres to 19.84 acres for the substation and new line segments. Each alternative route would traverse prime farm land; therefore, appropriate mitigation would address measures to minimize effects upon those lands. Such measures would include:

- Select as short a route as is practicable.
- Place facilities on field edges, adjacent to roads, and along existing pole line right of ways so their effect on agricultural operations and residential developments would be minimized.

The implementation of these procedures would, in large measure, offset project impacts to farm and rural residential areas.

Project related impacts to earth resources would be those which may accelerate the rate of soil erosion, or cause soil compaction. Disturbance of ground cover and soil compaction would occur as a result of construction activities on the right of way. However, these effects are not considered to have significant long term consequence. Fugitive dust caused by construction activities would be easily controlled by requiring contractors to implement common dust curtailment measures such as watering construction travel ways and other areas of surface disturbance. individual right of way agreements would stipulate appropriate revegetation according to the grantor's specifications.

Concern for biological resources would include project affects upon threatened or endangered plant and animal species, critical habitats, unique vegetative types, or areas of low vegetative potential. Consultation with the California Natural Diversity Database has been initiated. Should threatened and endangered species be found within the immediate project area, measures would be taken to **avoid** disturbing or impacting these populations. Detailed examination of these areas may be found in Section 4.

To satisfy compliance with Section 106 of the National Historic Preservation Act, as implemented through 36 CFR 800, the California Office of Historic Preservation and the Central California Information Center have been consulted for comments relative to historical or cultural resources. Their response is noted in Section 4 and Appendix 4.

The **proposed** Project would effect short-term increases in noise levels from the use of various vehicles and machinery during construction and maintenance. During periods of rain and fog some very low-level hissing may be noticed in the immediate line vicinity. For most persons, however, such noise is below the minimum threshold of hearing. Noise generated by the substation equipment would also be confined to a level of approximately 61Ldn. The San Joaquin Council of Governments allows a noise level of 75Ldn at the property line in industrial developments.

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No adverse effects are anticipated to be perceived as a result of Project facilities. This subject area is addressed in more detail in Section 4 of this document.

1.5 AREAS OF CONTROVERSY

Some level of controversy is anticipated to arise over the project's visual impacts and effects upon agricultural practices.

1.6 ISSUES TO BE RESOLVED

Of primary concern will be the certification of the environmentally and technically preferred transmission line route and substation site. Mitigation of areas of controversy may be stipulated by the project proponent (the City) and are discussed in detail in Section 4.

1.7 ENVIRONMENTALLY PREFERRED ROUTE

Based upon the review of potential impacts, route and **site** evaluation worksheets, individual routing and siting preferences, and agency comments; the cumulative land use, engineering and environmental consequences of each route and site were summarized (see Tables 1&2 in Appendix 2 and Section 5). The preferred route of least environmental impact was identified based upon a review of these data in relation to evaluation criteria. While the two alternative substation sites have been evaluated and **summarized**, a preferred location has not been identified in this Draft EIR (DEIR).

Public and agency comment on the Draft EIR will be solicited subsequent to its being approved for release **by** the Lodi City Council, filed with the Office of Planning and Research, and announced in the local newspaper. The final project disposition will result from an analysis of all data presented. Based upon the DEIR analysis process, the project proponent prefers the 60kV line alternative Route 1. Substation **site** evaluation results indicate both alternatives to have relatively equal merit. The ultimate substation site selection would therefore be based on the

■ preference of the project proponent.

A summary of the land use, engineering, and environmental evaluation criteria associated with the preferred and alternate routes and the alternate sites is presented in Appendix 1 and Section 5. The locations of alternate sites and routes are shown in Appendix 6. Correspondence solicited through the State Clearinghouse is contained in Appendix 4.

2.0 PROJECT DESCRIPTION

2.1 HISTORY

The City of Lodi (City) operates transmission and distribution systems solely within the Lodi city limits for the purpose of providing electric service to City customers.

Under its present operating configuration, the City purchases power from Western Area Power Administration (WESTERN) and NCPA. These resources are delivered from PG&E's Lockeford Substation over four PG&E circuits of delivery to PG&E's Lodi Substation and thence over a single circuit to the City's adjacent Killelea Substation. Because of the overall growth of the City, substation facilities are reaching the point where, in the event of an outage at one substation, the others cannot adequately assume the additional load. During the summer of 1988, the Killelea Substation 60kV bus reached 90 percent of its capacity. Any one of several contingencies occurring under such a loading condition would cause an outage of potentially several hours affecting all of Lodi.

2.2 DESCRIPTION OF THE PROPOSED ACTION

2.2.1 Action and Benefits

Implementation of the "Industrial Substation Project" would consist of: constructing approximately 1.6 miles of 60kV transmission line to provide a new source of delivery from PG&E to

the City; construction of a new 60kV substation to be the new point of delivery; and modifications to existing PG&E 60kV lines and City 12kV and 60kV lines to tie together new and existing facilities.

Construction of the proposed Industrial Substation project would allow the City to reinforce deficient portions of their electrical system, and provide a firm, reliable electrical supply to its customers. Specifically the project as conceived would:

- Increase reliability of service to the entire City by providing three 60kV circuits for delivery of power to the City from PG&E, rather than Justone as in the present situation.
- Provide a higher capacity, dual 60kV substation bus arrangement, so that maintenance activities can be performed without interrupting power to the entire City.
- Provide additional 12kV capacity on the east side of Lodi, so that all electrical load can be served should an outage of the Killelea Substation occur during the peak load season.

The new 60kV transmission line would extend from a tap point on PG&E's Lockeford-Lodi No. 2 line to the new substation. The preferred route, approximately 1.6 miles in length, would traverse existing and planned transportation routes. The proposed design would consist of a single circuit wood pole line with horizontal post insulators (see Fig. 1). In several locations the route would follow that of existing distribution lines. In these cases the existing lines would be moved onto the new poles and the old poles removed (see Project Area Map - Appendix 6). The design criteria would conform to California General Order 95.

The new 60kV line would require a forty foot right of way. The total amount of land required for the preferred route right of way would be approximately 7.95 acres.

Under a City/PG&E agreement, PG&E would design and build this line. In addition, PG&E would acquire the necessary rights of way. Negotiations with landowners for easement rights would be conducted according to the California Uniform Relocation and Property Acquisition Act. Landowners would be compensated for the easement on a basis of fair market land value. If negotiations are not successful, condemnation proceedings would be undertaken. While many uses are allowed within transmission line easements, certain restrictions are imposed. These would primarily concern the erection of structures within the easement, or the conduct of activities that might pose a safety hazard or impede the operation and maintenance of the line.

2.2.2 Technical Characteristics

Conceptually, the proposed action would consist of two major elements:

- A single circuit **60kV** wood pole transmission line
- A 60kV-12kV substation

in addition, modifications to existing City 60kV and 12kV lines would be made, and short segments of **60kV** lines constructed within the City to interconnect existing facilities.

Siting analysis has identified suitable alternative substation sites and transmission line routes. In order to plan for future contingencies, the City would purchase a ten acre parcel for a substation site. The project as proposed would require a fenced area of approximately three acres (Fig. 2). Alternative sites are located at the southeast corner of the Lodi Avenue and Cluff Avenue intersection and on the south side of the CCTCo near the east end of Lodi Avenue (see Project Area Map - Appendix 6.)

The Industrial Substation would be a completely new facility requiring a new site separate from existing facilities owned by the City. Entry and exit 60kV transmission lines from the station would tie to stations owned by Pacific Gas & Electric (PG&E) and the City. Underground 12kV feeders would tie to the existing city distribution network.

The proposed substation would consist of two 60kV yards and one 12kV yard with space to accommodate future facilities. The 60kV yards would be double bus-double breaker schemes with disconnect switches on the two main buses to tie the City (load) 60kV yard with the PG&E (source) 60kV yard. Revenue metering points for WESTERN would be located on the two main buses on the source side (PG&E) of the 60kV bus tie switches.

The existing PG&E Lockeford-Lodi Line No. 3 would be cut and looped through the Industrial Substation. A new 60kV line segment would be built from the existing PG&E Lockeford-Lodi No. 2 line to the industrial Substation.

Three 60kV lines from the City yard would tie to the existing City 60kV system. Two terminals on the City 60kV bus would connect to the two 60-12kV transformers that feed the 12kV yard.

The 12kV yard would consist of a main and transfer bus scheme with a switch-sectionalized main bus and one tie breaker. Five underground feeders would be installed initially with buswork and structures provided for three additional feeders. Space would be provided for a future third 60-12kV transformer and five 12kV feeder positions.

Refer to the Substation General Arrangement Diagram (Fig. 2) for details.

Substation and associated facilities would require a site of approximately ten acres. A three acre enclosed portion of the site

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would contain transmission line entry and exit structures, power circuit breakers, two 60-12kV power transformers, rigid bus work, water and sewer lines extended for a small control house with restroom, and various pieces of ancillary operating, metering, and safety devices. The power circuit breakers would utilize an arc extinguishing gas compound called SF₆, in circuit breaker tanks. SF₆ is a nontoxic, non-explosive, inert gas; however, because the gas displaces oxygen, under enclosed conditions there is a risk of suffocation. The tanks for the power transformers would each contain 6,000 gallons of insulating mineral oil. Standard oil containment devices, either sealed earth berms or concrete pad and walls, would be constructed around the transformers to contain oil in the unlikely event of a leak or spill.

The developed area of the site would be enclosed by a ten foot wood slat chain link fence topped with three strands of barbed wire.

2.2.3 Project Cost

Engineering, right of way, and construction costs have been estimated for the preferred route and substation. The cost of other considered alternatives would not vary significantly from the preferred alternative. While a cost-benefit analysis has not been developed, the No Action--therefore--No Cost alternative would result in City power supply and reliability limitations in the near future.

Cost estimates for the project as proposed are as follows:

Substation (Design/Construct)	\$3,820,000
60kV Transmission Line (PG&E Design/Construct & Right of Way)	\$481,000
60/12kV Line Interconnections (Design/Construct)	8407,000
Total Estimated Cost-Preferred Action	<u>\$4,708,000</u>

These costs are preliminary, planning level estimates. Budget estimates for construction inspection and project management are not included.

2.2.4 Intended Use of EIR

This Environmental impact Report (EIR) is intended to **be** used as an informational source document to inform public agency decision-makers and the general public of the potential significant environmental effects **of** the proposed City of Lodi industrial Substation Project. This document also identifies possible **ways** to minimize the significant effects, and describes reasonable alternatives **to** the project.

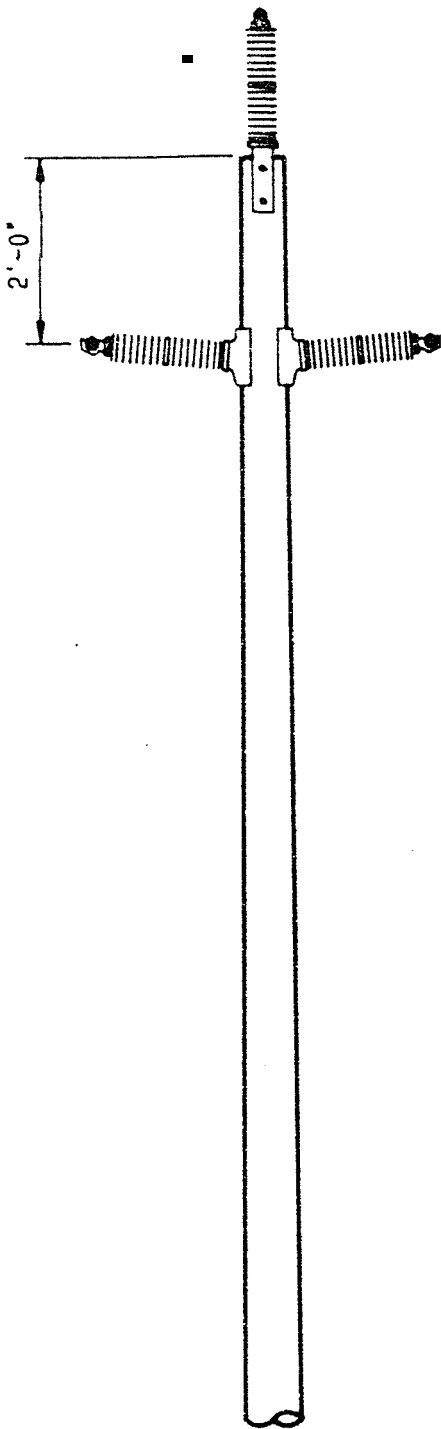
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The City of Lodi is the CEQA Lead Agency for the project. Public agencies that have been informed of the project and have been invited to comment are:

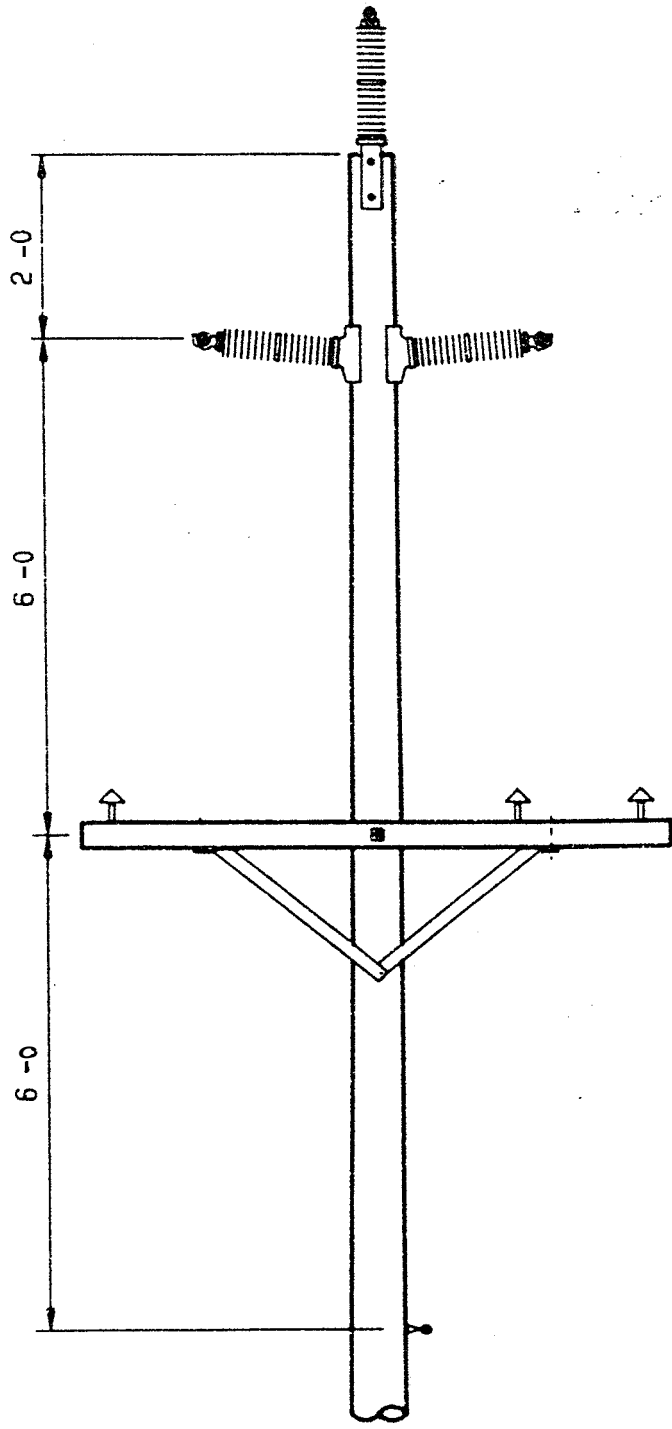
U.S.D.A. - Soil Conservation Service
Federal Emergency Management Agency
US. Fish and Wildlife Service - Division of Ecological Services
U.S. Fish and Wildlife Service - Division of Wetlands inventory
California Energy Commission
CALTRANS - Division of Aeronautics
California Department of Food and Agriculture
California Department of Health
Native American Heritage Commission
California Public Utilities Commission
California Department of Transportation - District 10
California Department of Fish & Game
California Department of Parks and Preservation -
Historic Preservation Office
San Joaquin County - Department of Public Works
San Joaquin County - Agricultural Commissioner
City of Lodi - Community Development Department
San Joaquin County - Planning Division
Office of Planning and Research - State Clearing House

All agencies are expected to perform a review of the project to determine if there may be any conflicts between the proposed facilities and any agency plans or resource values.

In the event of EIR certification and the filing of a Notice of Determination, permits would be acquired during the right of way acquisition phase from the agencies that require them.



60 kV



60 KV WITH
12 kV UNDERBUILD



HAILEY

IDAHO

CITY OF LODI

INDUSTRIAL SUBSTATION PROJECT

60KV WITH 12KV UNDERBUILD

65 FT. TYPICAL STRUCTURE HEIGHT

TYPICAL STRUCTURES

3-28-89

JOB NO. 1345

DRAWING NO.

REV

FIG 1



lodi.sk1

3.0 ROUTING AND SITING ANALYSIS APPROACH

In order to identify a preferred transmission line route and alternative sites for the **substation**, interrelated factors of engineering and environmental studies of identified alternatives have been evaluated.

3.1 GENERAL

From a strictly pragmatic sense, few constraints exist that make the placement of a transmission line impossible. However, given a choice of options governed by economic and environmental variables, the selection of a route or site may be made which represents a responsible assessment of these options. The environmental impacts of the proposed action are considered in a broad sense to include an assessment of both beneficial and adverse affects **on** the social, economic, and natural environments. While many **impacts cannot** be predicted with certainty, their probability of occurrence *is* made easier to predict through a **systematic** assessment process.

For the City of Lodi Industrial Substation Project, alternatives have been selected for evaluation that represent **relative** degrees of validity.

While any number of environmental elements may be considered, not all would be relevant to the identification and evaluation of each alternative. Those elements that **were** considered relevant are discussed in Section 4. **They** are grouped into four general categories:

- Living Components
- Non-Living **Components**
- Human Values
- Demographics and Socioeconomics

The probable effects of the proposed action on each of the **elements** were weighed against the pre-action condition in selecting and evaluating **alternate** sites and routes. Only those primary routes that represent unique opportunities were retained for an in-depth analysis.

The two primary routes initially studied both represent north-south corridors. Because of the City's need to tie the new 60kV line into the Killelea, Lienning, and McLane Substations, several north-south route segments were examined. Field review of these links resulted in the determination that not all links offered unique solutions that are not made available via another link. Therefore given the desirability of examining truly unique link combinations, some links were excluded from further study. Those excluded links were: the CCTCo beginning approximately 500 feet north of Highway 12 to Sargent Road; Guild Avenue from the Guild Winery to a point approximately 500 feet north of Highway 12; and Kennison Lane. These links were analyzed but not considered further as they quantitatively present a larger number of potential conflicts, i.e. commercial buildings, homes, barns, tree trimming or removal, and additional angles.

A route analysis and weighting scheme was developed to optimize an objective analysis of link segments, see Appendix 1 - Route Evaluation/Weighting Analysis Criteria Definitions, and Appendix 2 - Route and Site Evaluation Worksheets. The preferred alternative is defined as the set of route segments that offers the best balance between environmental, engineering, land use concerns, and probable project impacts while satisfying the stated need for the project.

The preferred alternative selection process proceeded as follows:

1. Identify a study area that is large enough to provide alternatives for study within the parameters of prudent economic, engineering, and environmental constraints. Confine the study area to allow the entire area to be studied at a satisfactory level of detail.
2. Prepare a study area environmental data base and constraint analysis.

3. Assuming a requirement for a forty foot right of way and a ten acre substation site, select apparent "least impact" routes and sites.
4. From the identified alternatives, select a "preferred alternative route."
5. Assess potential impacts of each alternative.
6. Develop proposed mitigation.
7. Assemble a Draft EIR

The study area for this proposed action is believed to contain all feasible alternatives for the placement of a 60kV transmission line and a **60kV - 12kV** substation while fulfilling San Joaquin County's and the City's routing/siting criteria :

- Avoid excessive impacts upon agricultural lands.
- Utilize existing access.
- Minimize routing through areas of general residential and commercial development.
- Avoid areas representing engineering hazards or requiring costly design measures.
- Minimize the line length.
- Avoid areas of critical environmental concern.

Alternate routes within the study area were identified based on field inspection and on the information presented in this report. These routes are presented with the understanding that their position on the study area map does not represent an exact centerline location. Detailed

engineering, surveying and design may result in minor deviations from the routes as mapped in this report. Individual structure locations would be determined through a process of design requirements and public comment.

3.2 ROUTE EVALUATION CRITERIA

Route and site evaluation criteria that represent the engineering, land use, and environmental concerns present within the study area are listed in Tables 1 and 2. Each criterion is assigned a relative value of importance or weighting. These weights range in value from 5, which represents a high potential for conflict and/or cost, to -3, which represents a positive impact, and/or less cost. When the weighting is multiplied by the number of occurrences along a given route segment or link, the resulting score reflects the compatibility of the link with the specific criterion. When the links are combined and totaled, the route and/or site with the fewest occurrences, or lowest numerical score is considered the best. Appendix 1 contains a detailed discussion of all route evaluation and site evaluation criteria, and their respective weight assignments.

3.2.1 Link/Site Development

Each route is composed of route segments or links. Two primary routes and two substation sites have been identified. The links, routes, and substation sites are shown on the project area map included in Appendix 6

3.2.2 Link/Site Inventory and Scoring

Each link and substation site was reviewed using the route and site evaluation criteria worksheets. The inventory process involved counting the number of occurrences (i.e. number of angles greater than 60°, each thousand feet requiring new access) for each route, or site evaluation criteria. Since the routing of the 60kV line for this project is for a relatively short distance, approximately 1.6

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miles, a unit of per thousand feet was used for each link rather than miles or feet.

These tabulated occurrences of environmental, land use, and engineering conditions along each link or within each site were then multiplied by their respective weights, and a total score was calculated. For example, in the engineering category, the criterion "number of angles greater than 60°" has a weight of four. If a link has two angles greater than 60°, then it would have a score of **8** (two angles times a weight of four). The weighted scores were then added together respectively to obtain a total score for each link and site. The lower the number, the more acceptable the link. Appendix 2 shows the result **of** the inventory and total scoring for all links and sites.

3.2.3 ROUTE AND SITE SCORING

Route scores were determined **by** adding the individual scores of links that make up each route. For example, the total score for Route 1 was obtained **by** adding the totals of links 1.1, 1.2, 1.3, **1.4**, 1.5, and **1.6**. The route totals were also broken down into totals of the three major criteria categories: land use, engineering and environmental. The land use score for Route 1, for example, was obtained by adding the land use scores for all link segments that made up Route 1. Table 3 of Appendix 2 is the form developed to summate these totals and also to assign the route ranks discussed below.

Substation site scores were also obtained by adding up the totals of the three major criteria categories. However, in this instance, the scores of this project element were not incorporated to arrive at a total project score.

TABLE 1
ROUTE EVALUATION

*** ANALYSIS CRITERIA ***

LAND USE CONSIDERATIONS

	WEIGHT
Number of Buildings Requiring Removal/Relocation	5
Per Thousand Feet Requiring Special Restoration Efforts	3
Per Thousand Feet Crossing Agricultural Land on a Diagonal	5
Per Thousand Feet Along Field Edge	2
Per Thousand Square Feet in Conflict with Land Use Planning Goals	5

ENGINEERING CONSIDERATIONS

Per Thousand Feet of Line	5
Per Thousand Feet Requiring New Construction/Maintenance Access	5
Per Thousand Feet of Line of Existing Distribution/Communication	-3
Per Thousand Feet Along Poorly Drained Floodplain/Wetlands Area	5
Number of Angles Greater Than 60°	4

ENVIRONMENTAL CONSIDERATIONS

Number of Cultural Resource Conflict Areas	5
Per Thousand Feet Through Sensitive Wildlife Habitat	5
Per Thousand Feet Requiring Tree Trimming/Removal	5
Number of Residences Within 100' of R/W Exposed to Electro/Magnetic Fields	5

The range of weights represents a high potential for conflict or cost (5), to a positive factor of -3, which represents less cost and/or impact.

TABLE 2
SUBSTATION EVALUATION

*** ANALYSIS CRITERIA ***

LAND USE CONSIDERATIONS

	WEIGHT
Number of Buildings Requiring Removal/Relocation	5
Number of Private Land Owners Affected by Acquisition	2
Offsite Construction impacts	2
Long Term Effects on Adjacent Land Uses	2
Siting on Cultivated Cropland	5

ENGINEERING CONSIDERATIONS

Difficulty of Site Preparation	2
Site Acquisition Costs	4
Ease of Existing Access	4

ENVIRONMENTAL CONSIDERATIONS

Cultural Resource Conflict Areas	5
Sensitive Wildlife Habitat	5
Visually Prominent From Major State/Fed Highway	3

The range of weights represents a high potential for conflict or cost (5), to a low potential for conflict or cost (1).

4.0 ENVIRONMENTAL CONCERNS AND IMPACTS

For the purposes of this report, environmental impact has been defined as a modification, or anticipated modification, to the environment as it presently exists resulting from the proposed action. Environmental impacts could result:

- If environmental change or stress occurs to biotic populations or natural resources affecting their safety, health, abundance, productivity or aesthetic or cultural values.
- If the change or stress affects the diversity and variety of individual choice, the standard of living, or the extent of sharing life's amenities.
- If the change or stress affects the quality of renewable resources or the recycling of depletable resources.

Significant effect on the environment means a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance. An economic or social change by itself would not be considered a significant effect on the environment. A social or economic change related to a physical change may be considered in determining whether the physical change is potentially significant.

Environmental impacts can be positive (beneficial) or negative (adverse) as a primary result of the action (direct) or as a secondary result (indirect). These impacts can be permanent or long-lasting (long-term), or temporary or short duration (short-term). They can vary in degree or magnitude from no change, or only slightly discernable change (no identifiable impact), to a total change in the environmental condition or system (high impact). The level of impact is described as follows:

High impact - A high level of impact would result if the construction, operation, maintenance or abandonment of the proposed Project would potentially cause a significant or substantial adverse change or stress to

an environmental resource or resources.

Moderate impact - A moderate impact would result if the construction, operation, maintenance or abandonment of the proposed Project would potentially cause some adverse change or stress (ranging between significant and insignificant) to an environmental resource or resources.

Low Impact - A low impact would result if the construction, operation, maintenance, or abandonment of the proposed Project would potentially cause an insignificant or small adverse change or stress to an environmental resource or **resources**.

No identifiable impact - No identifiable impact would be indicated where no measurable impact would occur to the specific resource(s) under investigation.

Duration of impacts has been defined for the potential and residual impacts described as follows:

Short-term impacts are those changes or stresses made upon the environment during construction. Such change would generally revert to preconstruction conditions a?, or within a few years of, the conclusion of the construction phase. Although short in duration, such impacts are normally obvious and often highly disruptive in nature.

long-term impacts are those changes or stresses made to the environment during construction and operation that would substantially remain for the life of the proposed project (35-40 years) and beyond.

4.1 ENVIRONMENTAL SETTING

The City of Lodi is located in the north-central portion of San Joaquin County, which is the northernmost county in the San Joaquin Valley, and is a part of the Central Valley. The most recent population estimate (March 1, 1989) for Lodi is 50,000. In Lodi the land slopes at a rate of approximately five feet per mile from the northeast to the southwest.

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The climate in the project area is characterized by hot, dry summers, and mild, wet winters. Temperatures may dip below freezing in winter with an average January minimum of 48°F. In summer, temperatures often exceed 100°F; the average July temperature is near 90°F. The mean annual rainfall is about seventeen inches and generally occurs during storms between October and April. Dense fog can occur in late autumn and early winter but as the daytime temperatures rises, it usually disperses unless a stagnant atmospheric condition exists during which time the fog may last for weeks.

4.2 FLORA AND FAUNA

The project would be located in a predominantly developed, industrialized area. Any undeveloped areas are mainly agricultural. Since much of the project area has been in urban or agricultural uses for many years, little if any native California vegetation remains.

Nut and fruit orchards, grape vineyards, row crops, grasses, ornamental and shade tree species, and a few isolated palm trees comprise the vegetation found in the project area. The vegetation serves as habitat for animals, erosion control, a contributor of oxygen to the atmosphere, and possibly a neutralizer of noxious air pollution.

The presence of mammals, birds, and reptiles occurs in direct association with vegetative communities. The agricultural land provides a food source for wildlife. In the study area, the Mokelumne River flows year round.

Impacts and Mitigating Measures: The proposed project is not expected to pose a long-term impact to wildlife species, or to degrade wildlife habitat. The tap point for Route 2 is located within the floodplain for the Mokelumne River, but is not located within a riparian area. No impact to riparian zones are expected.

Minor tree trimming along the selected transmission line route might be necessary on a case by case basis.

4.2.1 Threatened and Endangered Species

Consultation with the California Natural Diversity Database indicates there are no state or federally listed rare, threatened, or endangered species or habitats of special concern located within the project area. Should threatened and endangered species be found within the immediate project area, measures would be taken to avoid disturbing or impacting these populations.

Impacts and Mitigating Measures: Consultation with the appropriate agencies would be undertaken should threatened or endangered species be found within the project area. From this consultation appropriate mitigation for impacts to these populations would be implemented.

4.3 SOILS

The area is dominated by moderately deep to very deep soils of nearly level to gently sloping alluvial fans. These soils, Hanford - Greenfield Association loam, have a Class I capability rating assigned by the U.S. Department of Agriculture's Soil Conservation Service, and have virtually no limitations for agricultural purposes, as is evidenced by the wide variety of crops grown in the area.

For the purpose of substation and structure construction, the bearing capacity of the soil is adequate at approximately 2,000 pounds per square foot with no expansive characteristics.

Impacts and Mitigating Measures: Right of way clearing, augering holes for structures, and substation site preparation are project activities that would have varying degrees of impacts to the area soils.

Soil disturbing activities along the rights of way would be short term and can be minimized by efficient construction methods, thereby reducing vehicular traffic. Since there is very little gradation of slope, there would

be little erosional threat as a result of construction activities. The inherent productivity of the area soils would allow rapid re-establishment of native vegetation in the areas that are not cultivated.

4.4 FLOODPLAINS AND WETLANDS

According to FEMA Floodplain Map No. 165 for San Joaquin County, issued July 4, 1988, Route No. 1 does not lie within a 100-year floodplain. Route No. 1 is located in Zone B, which is a 500-year floodplain area. Route No. 2 would have its tap point located within the 100-year floodplain. The rest of the Route No. 2 is located in Zone B.

Impacts and Mitigating Measures: If Route 1 is certified, no impacts would result to wetlands. Route 2 would involve minor, short term impacts associated with constructing the tap point in the Mokelumne River floodplain. The tap point for Route 2 would not be located in a riparian area.

No wetlands would be crossed or disturbed by the Project. No unique wetland wildlife habitat occurs in the project area.

No impacts to surface or ground water resources should result from the project.

4.5 GEOLOGY AND SEISMICITY

During the last several million years, the Great Valley filled completely with sediment eroded from the canyons of the Sierra Nevada and became dry land. Underlying these sediments are many thousands of feet of the monotonous Great Valley Sequence rocks, which appear to have begun as sediments on the floor of the ocean, just as the same kinds of sediments are being deposited offshore today. Most of these sediments are muddy sandstones, layered with a few layers of black basalt lava flows and beds of chert, a rock composed of the skeletons of microscopic animals all welded together by recrystallization.

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The Great Valley of California, also known as the Central Valley, is about 450 miles long with an average width of about 50 miles. The northern portion of the valley is called the Sacramento Valley and the southern portion the San Joaquin Valley. The northern-most fault, the Stockton fault, which is about 14 miles south of Lodi, is the boundary generally used by geologists to separate the Great Valley into the two sub-basins. Lodi is located directly in the middle of the separation point.

According to the 1985 Uniform Building Code, the City of Lodi is located in seismic zone 3. Potentially, the most active fault in closest proximity is located 22 to 32 miles west of Lodi in the Rio Vista-Montezuma area. The Stockton fault is considered inactive while the nearest historically active fault is the Antioch fault located about 30 miles southwest. The infamous and active San Andreas fault is about 70 miles southwest.

Fine grained cohesionless soils and sands of low permeability, loose to medium in density that are in a saturated state are most susceptible to a phenomenon called liquefaction. Liquefaction refers to the instantaneous, partial to complete loss of soil strength, and can result in a catastrophic failure of foundations.

Impacts and Mitigating Measures: The line would be designed to meet earthquake standards. It is anticipated that explosives would not be necessary because bedrock would not be encountered during pole structure placement.

When a final route has been selected, loading and structure types finalized, and a geotechnical program completed, a foundation analysis should be done to address specific liquefaction potential.

4.6 AIR QUALITY

The project area is located in the northern-most portion of the San Joaquin Valley Air Basin. The Basin air quality regularly violates the standards for ozone, carbon monoxide, and total suspended particulates.

From May to October, the prevailing west and northwest winds may bring pollutants from the more heavily populated Bay Area into the Loai area. From October to February temperature inversions may occur that trap pollutants near the earth's surface.

Corona, which is the ionization of air around a charged object, occurs at the surface of a power line because the electric field strength exceeds the insulating capability of the surrounding air.

The corona phenomenon also generates ozone and oxides of nitrogen in the air around lines. Ozone forms naturally from lightning discharge and from reactions between solar and ultraviolet radiation and air pollutants. In the home, electronic air purifiers and some wastewater treatment systems produce ozone.

Impacts and Mitigating Measures: The proposed project would have no long term deleterious effect on air quality; however, during construction some short term increase in dust and vehicle emissions may be experienced. **Typical** mitigation would call for the construction contractor to provide water trucks or other dust abatement measures in areas along dirt roads where dust may be a problem.

The estimated maximum incremental ozone levels at ground level due to the proposed transmission line are insignificant. Corona-produced oxidants from the proposed line would not have an impact.

4.7 NOISE

Motorized transportation corridors represent the major noise problem **areas** with decibel levels decreasing as the distance between the source and listener increases. Agricultural machinery and aircraft operations also contribute to background noise. Areas exposed to less than day/night average noise levels (L_{dn}) of 75 decibels are considered acceptable for industrial development.

The transformer noise level generated by the proposed substation would approrimately 61Ldn at the nearest property line.

Impacts and Mitigating Measures: The greatest noise impact from the proposed project would result from construction. Impacts associated with construction activities are short term in nature and not considered significant. Construction activities would not be allowed during night hours.

Noises associated with the operation and maintenance of transmission lines and substations are minimal. Substation noises are caused by vibration induced in the laminated cores of transformers as a result of the alternating magnetic flux field. Cooling fans may emit high frequency noise. However, fan noise rarely contributes to the overall **noise** level of the transformer. Other substation noises are the result of maintenance vehicles frequenting the site approximately once or twice weekly. A screened chain link fence ten feet in height would enclose the substation. This fence would help attenuate noise generated at the substation.

4.8 ELECTRICAL AND MAGNETIC FIELD EFFECTS

Power lines, appliances, motors and wiring in houses, like all electrical devices and equipment, produce electric and magnetic fields (E/MF). Electric fields are caused by placing a voltage on a conductor. They are measured in volts per meter (V/M) or for stronger fields, in kilovolts per meter. Magnetic fields are caused by electrical current flowing in the conductor. Magnetic fields are measured in units called gauss or milligauss. Both electric and magnetic fields dissipate rapidly as distance from their source increases.

Since the early 1970's concerns have surfaced about long term hazards caused by E/MF. Numerous studies have been conducted to determine the existence and extent of health effects caused by E/MF. Overall these studies have shown that there is no evidence that E/MF produced by electrical transmission lines pose a health threat to humans or animals.

Reviews by the U.S. Environmental Protection Agency, other federal and state agencies, and individual researchers support this conclusion. A review by the World Health Organization concluded that electric and magnetic fields from transmission lines of 400-800kV do not constitute a danger to human health.

Electric field effects, such as induced current, voltages or magnetic fields are directly related to the voltage level of the transmission line. Effects observed by laboratory studies have been associated with voltages much higher than the proposed transmission line. At 60kV, the strength of the electric and magnetic fields is low enough that field effects are negligible.

No national standards or regulations exist specifically limiting E/MF from electrical transmission lines. Six states and one city have adopted standards or guidelines for electric fields. The transmission line voltages regulated under these standards are all much higher than the proposed 60kV line.

Due to the low voltage of the proposed transmission line, no effects on radio or television signals are expected.

Impacts and Mitigating Measures: No conclusive evidence exists that points to the likelihood of impacts from E/MF, especially for low voltage transmission lines like the one proposed. Nonetheless, weighting factors for alternative route selection received high consideration for transmission line proximity to residential areas.

Should unexpected disruption to radio and television signals caused by the transmission line occur, the City of Lodi would mitigate the problem.

4.9 VISUAL RESOURCES

The proposed transmission line poles would be approximately 65-feet tall. At the base, the poles would be about twenty inches in diameter. The insulators holding the conductors would extend about three feet

from either side of the wooden poles. Typical structure drawings are shown on Figure 1 in Section 2. The length of the preferred transmission line route is 1.6 miles. Route 2 would be approximately 2.03 miles in length.

The project area presently contains man-made facilities that impose a variety of patterns and contrasts upon the landscape. These existing structures include overhead electrical transmission, distribution, and communication lines. Other air space intrusions consist of outdoor advertising signs, highway and railroad crossing signs, industrial buildings, the City water tower, and other facilities of various size.

The low topographic relief of the San Joaquin Valley does not allow transmission lines to be screened by natural features. Native and domestic vegetation is of low height and density so as to provide intermittent screening of structure bases only. Therefore, the contrast of the vertical structures and aerial horizontal lines of the conductors would be evident to the foreground and middle ground views in the project vicinity. No designated scenic routes are within the study area.

Impacts and Mitigating Measures: The addition of the transmission line structures to the existing visual setting of the area would be a residual impact, evident during the entire lifetime of the facilities. However, this impact is being introduced into an industrial area slated for more development and is compatible with the area's land use. With the exception of the line segments along railroad and the agricultural areas, all of the proposed routes are along existing or platted roads. Therefore, the line would be seen mainly by persons living and traveling along the roads.

Single wooden poles that represent a narrow profile would be used. This would help to minimize visual effects.

Additional action to be taken to mitigate visual impact of the project would be screening the substation from view by a screened type chain link fence.

4.10 CULTURAL RESOURCES

Consultation with the Central California Information Center (Appendix 4) has indicated no recorded archeological or historical cultural resources are located within the specific area of the project. However, there are four recorded cultural resource sites within a one mile radius of the project area. Additionally, three sites located within the general vicinity of the project have been nominated to the National Register of Historic Places. This information has been forwarded to the California State Office of Historic Preservation (SHPO) for their review.

Impacts and Mitigating Measures: A letter from the Native American Heritage Commission (Appendix 4) advises cultural resources have been discovered at other projects at depths greater than eight feet. The entire project area has been disturbed by either agriculture or other land uses. In the event that cultural or historic remains are discovered during construction activities, all work in the area of the find will cease and the City of Lodi will immediately notify the California SHPO to solicit mitigation recommendations for appropriate action.

Once a preferred route and substation site alternative have been chosen, a Class III archaeological field reconnaissance would be conducted for these locations.

4.11 SOCIO-ECONOMICS AND COMMUNITY RESOURCES

The economic base of the area is the processing and delivery of the agribusiness products of the surrounding rural area. Lodi also serves as a bedroom community for many residents who commute for employment, primarily to Stockton or Sacramento, and more recently the Bay Area.

The major employers in the Lodi labor market area, which includes nearly 75,000 persons, are General Mills, Goehring Meat, Inc., Pacific Coast Producers, Holz Rubber Company, Guild Winery, Valley Industries, and Dart Container Corp. The recently completed expansion by General Mills

represents substantial and reliable productivity.

Major non-manufacturing employers include: Lodi Unified School District, Lodi Memorial Hospital, Lodi Community Hospital, The City of Lodi, Farmers and Merchants Bank, Pacific Telephone, and Mervyns Department Store.

Social and economic impacts resulting from implementation of the proposed action would be positive. The contractor performing construction on the facilities would be encouraged to hire local labor, while the goods and services pertinent to construction personnel and operations (e.g., motels, restaurants, service stations, and recreational facilities) as well as sundry construction materials would be purchased from the local commercial sectors, thereby further bolstering the area's economy. All contractors and subcontractors must be equal opportunity employers. Probably the **most** significant impact of the proposed construction **would** be the positive impact that a more adequate and reliable energy supply would have on the lifestyle and livelihood of the City's consumers. Existing income producing operations may be expanded or utilize more modern technological methods; opportunity for new industry may be enhanced. Consumers would be assured of the quality of electric service.

Impacts and Mitigating Measures: The potential impacts of the proposed transmission line on population and income are indirect. Yet the transmission line could have secondary impacts by removing an obstacle to population growth thereby allowing development at general planned densities.

4.12 LAND USE

Land use adjacent to the alternative routes includes residential, commercial, industrial, transportation, and agricultural uses. Each of the routes minimizes contact with residential areas. Agricultural uses include row crops, pastures, vineyards, orchards and wineries. Most of the project area located in the county is zoned I-PA (Interim Protected

Agriculture), although a small section is zoned Limited Manufacturing (M-1).

The portion of the alternative routes that are located within the **Lodi** City limits are zoned **M-2**, Heavy Industrial.

Over the past ten years, the City of Lodi has also been faced with the issue of controlling expansion and growth of residential and other uses while protecting the agricultural lands. In an effort to control and plan for future development, the city enacted legislation by which any parcel of land to be annexed into the City would require a majority vote of the electorate. This action is intended to improve the quality of the environment for the residents and serve to protect agricultural land use by retaining land in agricultural production.

Impacts and Mitigating Measures: The project as proposed would take approximately ten acres out of agricultural production; subsequently being replaced with transmission poles and substation facilities. If alternate route 2 were chosen, approximately **10.1** acres would be removed from agricultural use. To ensure as little an impact as possible upon agricultural activities, the structure placement would use property lines, railroad, street and road corridors as much as possible.

5.0 EVALUATION OF ALTERNATE ROUTES

This section draws a comparison between the preferred and alternate routes, and also to the environmental concerns and potential impacts described in Section 4.0. Alternate routes are shown on the project area map in Appendix 6. The Route Evaluation Worksheet provides the basis for this evaluation and comparison of alternatives.

5.1 COMPARISON OF ALTERNATE ROUTES

Based on the the two preceeding sections (3.0 and 4.0) in which the routes are evaluated, analyzed and ranked, and environmental impacts

are illustrated, one preferred route and one alternate route are recommended. Both routes are described below and are compared in Appendix 2, Table 3, Alternate Routes Total and Ranking.

As stated in section 3.0, criteria were developed to evaluate potential routes and substation sites. These evaluation criteria (listed in Appendix 1) represent the engineering, land use, and environmental concerns present within the study area. Each criterion is assigned a relative value of importance or weighting. These weights range in value from 5, which represents a high potential for conflict and/or cost to -3, which represents a positive impact and/or low cost. When the weighting is multiplied by the number of occurrences along a given route segment or link, the resulting score reflects the compatibility of the link with the specific criterion. This assumes that all occurrences relative to each criterion are of equal value. When the links are combined and totaled, the route with the fewest occurrences and lowest numerical score is considered the best. Appendix 2 contains all route and site evaluation worksheets and a summary sheet representing the preferred route. The reader is encouraged to refer to the project area map in Appendix 6 to visually connect the route descriptions that follow.

5.1.1 Preferred Route = Route 1 (links 1.1, 1.2, 1.3, 1.4, 1.5, 1.6)

LINK 1.1:

This route has a total distance of approximately 7.6 miles with an estimated 17 landowners located along the total length. The route begins at interconnection A, east of existing pole 5/10 located in the Lockeford-Lodi No.2 60kV transmission line, which is east of the Guild Winery. From the tap point, the line would extend in a southerly direction along the west side of the Central California Traction Company (CCTCo.) Railroad, which has a ± 50 foot right of way width.

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A portion of this line would be underbuilt with 12.5kV distribution in order to serve a pump owned by the City of Lodi. The pump is located \pm 1,400 feet south of the takeoff point. There is a young cherry orchard west of the railroad beginning just south of the service drop to the pump.

The total length of this link is 2,720 feet requiring a 40 foot wide right of way, or approximately 2.5 acres.

LINK 1.2:

At the point where link 1.2 would turn west, there are problems with guy placement to make the right angle turn. They may be solved by using a slack span or self-supporting tubular steel pole. From link 1.2, which occurs at the northern edge of the San Joaquin Warehouse, an alternative route that continued south along the railroad across Highway 12 was considered but clearance was restricted by two brick buildings thereby making the route less desirable.

Link 1.2 alignment follows a property line and field edge in a westerly direction to Guild Avenue (formerly Myrtle Road). North of the property line is a vineyard and apple orchard; south of the line is vacant land. The line would be underbuilt with distribution 700 east of Guild Avenue in order to serve a well; however, the well itself may have to be relocated due to its close proximity to the proposed electrical line.

The length of link 1.2 is 1,340 feet requiring a 40 foot right of way, or 1.23 acres.

LINK 1.3:

Link 1.3 would turn south at Guild Avenue and proceed to Highway 12. A distribution underbuild would occur for the two spans across the Southern Pacific Railroad and State Highway 12.

At the State Highway 12 crossing, it may be necessary to remove a minimum of one tree and to lower the existing distribution line along the south side of the highway for at least two spans. A number of the trees are in the CALTRANS right of way; they have indicated permission would be granted for minimal tree removal. This alignment would have 700 foot total length, and require 0.64 acres of right of way.

LINK 1.4:

Area developers have received permission from the City of Lodi to extend Guild Avenue south from Highway 12 across Pine Street to the C & Co Railroad. Along this alignment, the electrical line would be located on the east side of the proposed street to avoid the small, zero setback industrial lots that have been platted on the west side.

Along the link 1.4 alignment for the proposed extension of Guild Avenue, halfway between Highway 72 and Pine Street, Dart Container Corp. maintains a booster water pump for fire suppression. It is enclosed in a cinder block and sheet metal building approximately 12 feet by 18 feet, and is 10 feet high. The building is located ± 2 feet from the property line. Also located approximately 12 feet within the northwest corner of the property line is a fuel pump, which is used to fuel Dart vehicles. In order to meet National Electric Safety Code (NESC) clearance, horizontal post insulators all placed on one side of the pole, called vertical construction, would be utilized in this area to clear the building and gas pump. This link would continue along the east side of future Guild Avenue in a southerly direction until crossing Pine Street. This link segment is $\pm 1,300$ feet in length, requiring a 2 foot overhang encroachment onto private property.

LINK 1.5:

On the south side of Pine Street, link 1.5 would meet an existing **4kV** distribution line. The line would be underbuilt with distribution in order to serve a pump at the Lodi Memorial Cemetery and other customers south of **CCTCo**. Horizontal post insulator construction, or vertical insulator configuration, may have to be used to avoid a well that is housed inside a shed located on the cemetery property adjacent to the west property line. The proposed Griffin Industrial Park to be located on the west side of the future Guild Avenue has been platted for small, zero setback lots. The proposed routing alignment would be on the east side of Guild Avenue to avoid these lots, and would require a 2 foot overhang encroachment onto the cemetery property. Although the structure placement would occur on the east side of the cemetery fence, construction would not disturb any existing or future grave sites. **Link 5** is $\pm 1,240$ feet in length.

LINK 1.6:

Link 1.6 would cross the future extension of Lodi Avenue and the **CCTCo**, a distance of 100 feet, and would follow along the railroad's south side for a distance of 1,190 feet. This alignment would avoid the congestion at **Link 1.6.1** by crossing **CCTCo** at the west side of the cemetery. Substation site, **SS-2**, would be located on the south side of **CCTCo**. Alternative substation site, **SS-1**, would be located to the west of **SS-2**, in which case the route would then continue in a westerly direction and would overbuild an existing distribution line to a proposed substation site, **SS-1**.

LINK 1.6.1 (Alternative to 1.6 link):

Link 1.6.1 would follow the south side of the future extension of Lodi Avenue and the north side of **CCTCo** in a westerly alignment currently occupied by the Lockeford-Lodi No. 3 **60kV** line; a distance of 1,120 feet. This alignment would require the

placement of an additional circuit of **60kV** line, which would parallel the existing Lockeford-Lodi No. 3 line.

At the east **side** of Cluff Avenue, the line would extend for 230 feet in a southerly direction across the CCTCo to proposed substation site, SS-1.

5.1.2 Alternate Route 2 (links 2.1, 2.2, 2.3, 2.4, 1.5, 1.6)

LINK 2.1 :

This alternative route would have a takeoff point from the Lockeford-Lodi No. 3 60kV line located northeast of the City. Takeoff point B would occur at a point between existing poles **5/4** and **5/5**, **which** would be in the middle of a field of cultivated row **crops**. From the takeoff, the route would extend south within the river's Floodplain Zone **A14** (100-year flood boundary within which base flood elevations and flood hazard factors are determined) for approximately 1,120 feet across a field of row crops. The first two structures would be placed in a diagonal alignment across the field. It may be necessary to place a guy toward the Mokeiumne River within the primary containment levee to reach the top of the bench. A **40** foot right of way would be required for a total of 1.03 acres.

LINK 2.2:

Upon clearing the Floodplain Zone **A14**, this link would then extend in a southerly direction along a private farm road, which lies within **FEMA** Flood Zone B (a 500-year flood boundary). Vineyards are present on the west side of the road, with vacant land on the east side of the road.

This link would continue south and cross the Southern Pacific Transportation Co. Railroad (SPRR) and Highway 12 at the location of an existing distribution line. It would probably be necessary to

remove an existing tree in the CALTRANS right of way as part of the crossing permit. The length of this link would be approximately 1,830 feet, requiring 1.68 acres of new right of way.

LINK 2.3:

From Highway 12 to the east end of Pine Street, the route would follow existing property lines and a field road with vineyards on either side. This link segment would be approximately 1,330 feet, requiring 1.22 acres of new right of way.

LINK 2.4:

Link 2.4 would turn west at Pine Street and follow an existing distribution line. Since Pine Street is only **40** feet wide in this area, some guying and clearance problems would be encountered. There are three houses on the southeast corner of Pine Street and Curry Avenue that may force vertical clearance construction, to avoid clearance problems.

From Curry Street to the extension of Guild Avenue, \pm 3,300 feet, the line would be underbuilt with an existing distribution line, which runs along both sides of the street. The total length of link 2.4 is 3,740 feet.

As the line turns south at the cemetery at Link 1.5, a slack span would probably be required to avoid a stub and guy on the north side of Pine Street. From this point, the alternative route would follow the same alignment as Route 1.

5.2 Comparison of Substation Sites

Two sites near the City's industrial area have been considered for the new 60-12kV substation. Both locations are acceptable and a preferred site has not been designated at this time.

5.2.1 Substation Option SS-1

This site is located at the southeast side of Lodi Avenue and Cluff Avenue, south of the CCTCo railroad. The site is currently occupied by an older residential dwelling and vineyards. The site is located in San Joaquin County and is zoned I-PA (Interim Protected Agriculture). The County would allow a ten acre parcel to be developed by the City for use as a public facility.

Immediately north of SS-1 is PG&E's Lockeford-Lodi No. 3 60kV circuit. Siting a substation at this location would allow for easy access since Lodi Avenue is directly north, and the proposed extension of Thurman Street is directly south.

5.2.2 Substation Option SS-2

SS-2 is located approximately 1,200 feet east of SS-1 on the south side of CCTCo railroad. The site is currently vineyards zoned I-PA in the County.

Although the City plans to extend Lodi Avenue in an easterly direction and Guild Avenue in a southerly direction, currently there is no public access to this parcel.

The SS-2 site would require additional 60kV and 12kV line lengths to connect the substation to the City's electrical lines.

6.0 ENVIRONMENTAL CONSEQUENCES

6.1 SIGNIFICANT AND UNAVOIDABLE ENVIRONMENTAL EFFECTS

As stated previously in this document, there are no significant environmental effects associated with the City of Lodi's 60kV transmission line and substation.

No potentially significant impacts such as effect upon agricultural activities, existing high density residential and commercial areas, cultural resources, wildlife habitat, wetlands or other environmental factors were identified. The transmission line would have residual impact to the visual setting for the lifetime of the proposed facilities, **but** the preferred alternative is in an industrial area with varied and contrasting man made features already in existence. Although no evidence exists that **any long term effects would result** from electric and magnetic fields associated with the transmission line, route selection was weighted heavily to avoid residential areas.

Public comment would be received subsequent to releasing the Draft EIR. Public comment would be addressed and incorporated into the Final Environmental Impact Report and factored into the overall project evaluation.

6.2 MITIGATION MEASURES PROPOSED TO MINIMIZE THE ENVIRONMENTAL EFFECTS

Types of impacts were first identified by considering what effects activities associated with the proposed action could have on the pre-project environment. Each alternative corridor identified for the project encompasses a **40** foot wide right of way. Potential impacts occurring along the right of way were analyzed and evaluated in Section 3, tables 1 and 2; examined in Section 4, and summarized in Section 5. Mitigating measures were **also** identified within each environmental category and were specific **to** the impact discussed in Section 4.

6.3 THE RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

For purposes of this section, short-term has been defined as 35-40 years (the estimated life of the proposed project), and long-term as the period thereafter.

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Within the life of the project, the construction phase would represent the period of greatest environmental impact for the preferred 1.6 miles of 60kV transmission right of way and a substation site.

Construction within the preferred corridor would result in disturbance to approximately 7.95 acres for transmission structures and line installation and ten acres for installation of the new substation and associated facilities.

Following the construction phase of the project, the majority of the land disturbed would begin to revert to its preconstruction use. At each location an approximate 2,000 square foot area would be temporarily disturbed by the construction, this disturbance would include construction vehicle access. Rehabilitation would be conducted on this area as needed. The total area to be occupied by the typical tangent single pole structure would be approximately 4 square feet.

Most resources within the physical, biological, human, and cultural environments would experience short-term impacts resulting from construction activities. Long-term effects and productivity would depend on the continued existence of the proposed project's facilities, or the continued use of the right of way as a utility corridor.

6.4 SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES AND COMMITMENT OF RESOURCES

Resources committed to the proposed project would be material and non-material, and would include financial resources. Irreversible commitment of resources for the purpose of this section have been interpreted to mean those resources that are committed to the project and would continue to be committed throughout the estimated 35-40 year life of the project, and beyond as the line would remain in service as long as electricity to the City's subject areas is required.

City utility resources would be required to extend water and sewer lines to the substation control house. In addition, the extension of Thurman

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Street from Beckman Road easterly approximately 1,300 feet would satisfy the preferred access to SS-1.

Irreversible commitment of resources would apply to biological and visual resources. Biological resources would be irreversibly committed due to the disturbance and loss to vegetation and agriculture during construction and operation. Visually the line would represent a residual impact to the developed and industrialized project area.

6.5 GROWTH INDUCING IMPACTS

Growth inducing impacts resulting from construction of the proposed project would not directly foster economic or population growth. Residential and industrial subdivisions, and any future annexation impacts must be assessed when long-term needs are considered, and water, sewer, roads, and electricity eventually provided. The project would help provide adequate, reliable electric service to these steadily growing areas.

The areas of **Lodi** that the project is proposed to service are areas that have steadily increasing populations and industrial development. Despite the fact that annexation initiatives continue to be defeated, thereby precluding the need for immediate community services for new property, the growth and expansion of existing industrial developments continue to occur.

APPENDIX 1

**ROUTE & SITE EVALUATION
CRITERIA DEFINITIONS**

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APPENDIX 1

ROUTE AND SITE EVALUATION CRITERIA DEFINITIONS

This appendix discusses each of the criteria the routing team developed to evaluate alternative points of the transmission line routes and substation sites. These criteria were used for identifying general land use, engineering, and environmental conditions that pose constraints to routing a transmission line and siting substations. Weight assignments for these criteria, commensurate with the degree of conflict and/or cost, are also reviewed. This appendix is divided into two sections with three main categories each: a section each for transmission line and substation with each section addressing land use, engineering, and environmental considerations.

1.0 TRANSMISSION LINE EVALUATION CRITERIA

1.1 LAND USE CONSIDERATIONS

Number of buildings requiring removal or relocation. Pursuant to the California Relocation Act, this addresses the greatest direct impact of a transmission line, particularly from economic and social factors, and therefore was assigned a weight of 5. As presently envisioned with a forty (40) foot right of way, the preferred alignment would not require buildings to be relocated.

Per thousand feet of line requiring area restoration efforts. Within environmentally hardened urban areas, transmission line construction activities may require restoration of storm drains, curbs, sidewalks, parking lots, and decorative landscaping. A weight of 3 was assigned for each 1,000 feet affected.

Per thousand feet crossing agricultural land on a diagonal. Transmission lines impose special constraints upon agricultural practices, especially when routed at an angle to practical patterns. Such alignment creates undue hardship upon operators of farming machinery and aerial spraying applications. This criterion is considered a *severe* constraint and

has been weighted a 5.

Per thousand feet along field edge. While this proximity to agricultural operations imposes some problems to the operator, a field edge location is less restrictive than open field or diagonal rerouting. Therefore, this criterion is weighted a 2. This criterion excludes frontage for houses, barns, and commercial developments.

Per thousand square feet in conflict with land use planning goals. This criterion, given a weight of 5, is consistent with the Williamson Act and the San Joaquin County planning goal to protect agricultural land from incompatible uses. Relative to that goal, transmission line poles would directly withdraw land from productive uses by approximately 4 square feet per pole, or a cumulative total of 100 square feet (0.0023 acres) along the preferred route.

1.2 ENGINEERING CONSIDERATIONS

To ensure that the route ultimately selected for construction is feasible for transmission line construction and maintenance, a number of factors relating to design and construction were considered. Listed below are five engineering considerations used in the evaluation of the routes.

Per thousand feet of line. No other single factor contributes more to the cost of the transmission line than its length. Therefore, this criterion received a weight of 5.

Per thousand feet requiring new construction and maintenance access. Difficult or poor access requires special construction techniques and/or extended construction time. When these areas also require road building to aid in construction access and maintenance activities, reseeding or revegetation is often required. A weight of 5 was assigned to this factor.

Per thousand feet of line of existing distribution/communication of other utilities. Special engineering allowances have to be made when a

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distribution line is paralleled. If the transmission line is to be built alongside the existing distribution line, then additional right of way is required to provide adequate clearances. If the new line is built where the distribution is located, then the distribution line must be relocated in **one** of three ways: on the new structures (underbuild), below the new structures (underground), or on the other side of the road. In this **instance**, the distribution **underbuild** option would have a positive impact on the transmission line routing since existing right of way may be **used** and the visual impact created by adding a second **pole** line would not be increased. Therefore, this factor was assigned a weight of minus 3 (-3).

Per thousand feet along poorly drained, floodplain, wetland areas. Special structure foundation designs with higher associated costs may be required for these areas; therefore, a weight of 5 was assigned.

Number of angles greater than 60 degrees. Large angles have a higher cost because they require special structure design. A weight of 4 was assigned to each occurrence of this factor. For the routing of the alternatives, the angle of structures was estimated, final determination of angle degree will occur during design.

1.3 ENVIRONMENTAL CONSIDERATIONS

The four environmental considerations discussed below were selected to determine the degree of environmental conflict posed by the transmission line route location.

Number of cultural resource conflict areas. Sites of archaeological and historic interest and significance are to be avoided. A weight of 5 was assigned each time the line would pass over or adjacent to a cultural resource. While not an apparent issue, this criterion was retained to demonstrate its consideration.

Per thousand feet of line through sensitive wildlife habitat. Areas such as stream crossings, ponds, wetlands, abandoned fields, or pasture with

native vegetation provide habitat for a variety of plant and wildlife species including threatened or endangered species. These areas are assigned a weight of 5 for each thousand feet of occurrence.

Per thousand feet requiring tree trimming and/or removal. Orchards and various species of shade and ornamental trees are a valuable resource in an area otherwise devoid of trees; taller trees also provide a screening effect for the transmission line structures. Therefore, protection of trees is an important project consideration, and removal or tree trimming is weighted a 5.

Number of residences within 100' of R/W exposed to electrical and magnetic fields. While the present research on biological effects of electric and magnetic fields is inconclusive, the criteria represents consideration of this issue. Even though the relatively low voltage of the line and the field effects of the proposed line would be **below** any **established** standard, either at the right of way edge, or within the right of way, the criterion is weighted a 5 to demonstrate a sensitive response to public concerns.

2.0 SUBSTATION SITING EVALUATION CRITERIA

2.1 LAND USE CONSIDERATIONS

Number of buildings requiring removal or relocation. Pursuant to the California Relocation Act, this is the greatest direct impact of a substation in this category and was assigned a weight of 5.

Number of private land parcels affected by acquisition. The right of way process becomes increasingly involved as the number of parcels of land and potential landowners affected by a substation site increases. A weight of 2 was assigned to this factor to account for additional negotiation and settlement procedures that may be required.

Offsite construction impacts. The proximity of other land uses and the potential for their destruction during construction is a measure of a site's

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overall ability to accommodate development. This criterion is weighted a 2.

Long term effect on adjacent land uses. This criteria considers the effect of a substation on present and future land uses, and the perceived limitation on potential development. Included in this criteria is a consideration of electric and magnetic fields emanating from the substation. The criteria is weighted a 2 to account for possible cumulative long term effects.

Siting on cultivated cropland. Siting of a substation on cultivated cropland can potentially take 3 acres out of production. Such action would be inconsistent with the Williamson Act and San Joaquin County's planning goals. The location of a substation in the corner of a field may pose an obstacle to maneuvering farm equipment and reduces the flexibility in cropping patterns. For these reasons, a weight of 5 was assigned to this factor.

2.2 ENGINEERING CONSIDERATIONS

The following lists three engineering considerations that were used in the evaluation of the substation sites.

Difficulty of site preparation. Weighted a 2, this criterion is a measure of a site's physical characteristics, such as slope, drainage, accessibility, soil bearing capacity, etc., and the degree of difficulty they may impose on substation construction.

Acquisition cost. A parcel's size and shape will dictate to some degree the arrangement of substation facilities, and the ability to logically expand the substation to accommodate future needs. Acquisition costs were determined by recent, comparable costs for industrial zoned parcels within one-half mile of the proposed sites. This criterion is weighted a 4.

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Ease of existing access. Existing access to the proposed substation sites **was** considered for *this* factor. The City of Lodi intends to extend Thurman Street for the eventual, permanent access. However, at this time, an existing frontage lane south of Lodi Avenue and CCTCo would be the only access, therefore, this criterion was weighted a 1.

2.3 ENVIRONMENTAL CONSIDERATIONS

The four environmental considerations discussed below were selected to determine the degree of environmental conflict posed by substation siting.

Number of cultural resource conflict areas. Sites of archaeological and historic interest and significance are to be avoided. Thus, a weight of 5 was assigned each time a substation would be sited within **1/4** mile. While not an apparent issue, this criterion is retained to demonstrate its consideration.

Area of sensitive wildlife habitat. Areas such as ponds, wetlands, abandoned fields, or pasture with native vegetation provide habitat for a variety of plant and wildlife species. Sites in these areas are assigned a weight of 5 for each site located thereon. While not an apparent issue, this criterion is retained to demonstrate **its** consideration.

Visually prominent from a state/federal highway. To mitigate the visual impact of a substation to travelers of major highways, sites were chosen within an existing industrial area and well away from major travel ways, therefore this criterion **was** assigned a weight of 3.

3.0 ROUTE AND SUBSTATION SITE POINT RANKING

The total scores within each of the two major criteria categories were used to determine rankings. The route with the lowest total score received a ranking of 1. The alternative substation sites were weighted but not ranked at this time.

4.0 THE PREFERRED ROUTE

The route with the lowest score represents the preferred route according to the evaluation criteria. A preferred substation site has not been identified.

Route 7 is the preferred route with a total score of 63.72. Shown In Appendix 2, Table 3, Route 1 offers the optimum balance between design/construction costs, land use, and environmental concerns.

This route displays the best overall compatibility with the analysis criteria. Section 5.0 compares the preferred route and alternate route, and describes the positive and negative aspects of each.

APPENDIX 2

**ROUTE & SITE EVALUATION
WORKSHEETS**

TABLE 1: CITY OF LOOI-INDUSTRIAL SUBSTATION
ROUTE EVALUATION WORKSHEET
MARCH, 1989

ANALYSIS CRITERIA

LAND USE CONSIDERATIONS

NUMBER OF BUILDINGS REQUIRING REMOVAL/RELOCATION
PER 1000' REQUIRING SPECIAL RESTORATION EFFORTS
PER 1000' CROSSING AGRICULTURAL LAND ON A DIAGONAL
PER 1000' ALONG FIELD EDGE
PER 1000 SQ.FT IN CONFLICT WITH LAND USE PLANNING GOALS

LAND USE TOTAL

ENGINEERING CONSIDERATIONS

PER 1000' OF LINE
PER 1000' REQUIRING NEW CONSTRUCTION/HTC. ACCESS
PER 1000' OF LINE OF EXISTING DISTR./COMM.
PER 1000' ALONG POORLY DRAINED FLOODPLAIN/WETLAND AREAS
NUMBER OF ANGLES GREATER THAN 60 DEGREES

ENGINEERING TOTAL

ENVIRONMENTAL CONSIDERATIONS

NUMBER OF CULTURAL RESOURCE CONFLICT AREAS
PER 1000' THROUGH SENSITIVE WILDLIFE HABITAT
PER 1000' REQUIRING TREE TRIMMING/REMOVAL
NO. RESIDENCES WITHIN 100' OF R/W EXPOSED TO ELEC & MAG FIELDS

ENVIRONMENTAL TOTAL

GRAND TOTAL

LINK	11.1	11.2	11.3	11.4	11.5	11.6	11.6.1	12.1	12.2	12.3	12.4	
/1000'	2.72	1.34	0.7	1.3	1.24	1.29	1.35	1.12	1.83	1.33	3.74	
WT.	NUM	TOT	NUM	TOT	NUM	TOT	NUM	TOT	NUM	TOT	NUM	TOT
5	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0.01	0.03	0	0	0	0	0.5	1.5	0	0
5	0	0	0	0	0	0	0	0	1.12	5.6	0	0
2	2.2	4.4	1.29	2.58	0.5	1	0.9	1.8	0	0	1.68	3.36
5	10.029	10.145	10.016	10.08	10.005	10.005	10.009	10.045	0	0	10.016	10.08
	4.545		2.69		1.025		1.845		0		2.46	
									1.5		5.74	
											8.445	
											2.725	
											12.22	
	NUM	TOT	NUM	TOT	NUM	TOT	NUM	TOT	NUM	TOT	NUM	TOT
5	2.72	13.6	1.34	6.7	0.7	3.5	1.3	6.5	1.24	6.2	1.29	6.45
5	0	0	0	0	0	0	0	0	0	0	1.12	5.6
-3	1.4	-4.2	0.7	-2.1	0.2	-0.6	0	0	1.24	-3.72	1.29	-3.87
5	0	0	0	0	0	0	0	0	0	0	1.12	5.6
4	0	0	1	4	2	8	0	0	0	1	4	2
	9.4		8.6		10.9		6.5		2.48		6.58	
									11.39		24.8	
											9.15	
											6.65	
											15.48	
	NUM	TOT	NUM	TOT	NUM	TOT	NUM	TOT	NUM	TOT	NUM	TOT
5	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0
5	0.04	0.2	0	0	0.2	1	0	0	0.1	0.5	0	0
5	0	0	0	0	0	0	0	0	1	5	0	0
	0.2		0		1		0		0.5		0	
											0.5	
											0	
	14.14		11.29		12.92		8.345		2.98		14.04	
											12.89	
											30.54	
											18.09	
											9.375	
											91.08	
LINK	11.1	11.2	11.3	11.4	11.5	11.6	11.6.1	12.1	12.2	12.3	12.4	

TABLE 2: CITY OF LODI - INDUSTRIAL SUBSTATION
SUBSTATION EVALUATION WORKSHEET
MARCH, 1989

ANALYSIS CRITERIA

LAND USE CONSIDERATIONS

NUMBER OF BUILDINGS REQ. REMOVAL/RELOCATION
NUMBER OF FVT. LAND OWNERS AFFECTED BY ACQ.
OFFSITE CONSTRUCTION IMPACTS
LONG TERM EFFECTS ON ADJACENT LAND USES
SITING ON CULTIVATED CROPLAND

LAND USE TOTAL

SUB 51:SS-1			SS-2		
WT.	NUM	TOT	NUM	TOT	
5	1	5	0	0	
2	1	2	1	2	
2	1	2	2	4	
2	0	0	1	2	
5	1	5	1	5	
		14		13	

ENGINEERING CONSIDERATIONS

DIFFICULTY OF SITE PREPARATION
ACQUISITION COST
EASE OF EXISTING ACCESS

ENGINEERING TOTAL

H-1		TOT	NUM	TOT
2	1	4	1	2
4	1	4	1	4
4	1	4	3	12
		12		18

ENVIRONMENTAL CONSIDERATIONS

CULTURAL RESOURCE CONFLICT AREAS
SENSITIVE WILDLIFE HABITAT
VISUALLY PROMINENT FROM MAJOR STATE/FED HIGHWAY

ENVIRONMENTAL TOTAL

NUM	TOT	NUM	TOT
5	0	0	0
5	0	0	0
3	0	0	0
	0		0

GRAND TOTAL

	26	31
SUB ST:SS-1	SS-2	

TABLE 3: LODI DIRECT INTERCONNECTION PROJECT
 ALTERNATE ROUTE TOTALS AND RANKING
 MARCH 1989

		DISTANCE (MILES)	ACRES REQUIRED FOR 40' R/W	LINK COMBINATION
63.72	1	1.64	7.95	1.1, 1.2, 1.3, 1.4, 1.5, 1.6
166.11	2	2.03	9.84	2.1, 2.2, 2.3, 2.4 , 1.5, 1.6

APPENDIX 3

STAFF AND PUBLIC NOTIFICATION

RECEIVED

NOTICE OF PREPARATION

JAN 31 1989



CITY OF LODI

PUBLIC WORKS DEPARTMENT

TO: Jack Ronsko, Director
City of Lodi Public Works Dept.
221 W. Pine Street
Lodi, CA 95240

FROM: City of Lodi
Community Development
221 West Pine Street
Lodi, CA 95240

SUBJECT: Notice of Preparation of a Draft Environmental Impact Report

The CITY OF LODI will be the Lead Agency and will prepare an environmental impact report for the project identified below. ~~We~~ need to know the views of your agency as to the scope and content of the environmental connection with the proposed project. Your agency will need to use the EIR prepared by our agency when considering your permit or other approval for the project.

The project description, location, and the probable environmental effects are contained in the attached materials. A copy of the Initial Study is not attached.

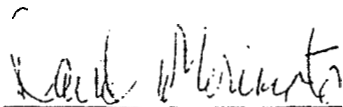
Due to the time limits mandated by State law, your response must be sent at the earliest possible date but not later than 30 days after receipt of this notice.

Please send your response to DAVID MORIMOTO at the address shown above. ~~We~~ will need the name for a contact person in your agency.

Project Title: CITY OF LODI DIRECT INTERCONNECTION PROJECT

Project Applicant, if any: CITY OF LODI ELECTRICAL UTILITY DEPARTMENT,
HENRY RICE, DIRECTOR

DATE: January 25, 1989

Signature: 

Title: ASSOCIATE PLANNER

Telephone: (209) 333-6711

Reference: California Administrative Code, Title 14, Sections 15082(a), 15103, 15375.

NOPINDSB/TXTD.01C

NOTICE OF PREPARATION
CITY OF LODI INDUSTRIAL SUBSTATION EIR

PROJECT STUDY AREA

The City of Lodi is proposing to construct an electric substation and related transmission lines east of the City of Lodi. An EIR will study the substation site located south of Lodi Avenue and east of Cluff Avenue, as well as various routes for the transmission lines. The study area will be roughly the Mokelumne River to the north, Curry/Kennison Road to the east, Industrial Way to the south and Highway 99 to the west.

PROJECT

The City of Lodi is proposing to construct a new electrical substation that will be called "Industrial Substation." The facility will be located in a future industrial area east of the City. The sites under consideration for the substation are south of Lodi Avenue and east of Cluff Avenue. This area is currently outside of the City limits and is planted in vineyards. The areas to the north, west and south are undergoing industrial development. The substation will require approximately three acres.

In addition to the substation, the project will require the construction of new 60-kv lines connecting the substation with existing electrical facilities. There will be two connections to existing PG&E transmission lines. One line will connect with the Lodi-Lockeford No. 2 line that runs along the Mokelumne River. The second connection will be to the Lodi-Lockeford No. 3 line that runs along Lodi Avenue/Sargent Road. The specific route of these connecting lines will be analyzed as a part of the EIR.

There will also be two new lines connecting the substation to the City of Lodi distribution loop located west of the substation site. These lines will be located within existing City easements and right-of-ways.

The Industrial Substation will consist of a 60-kv switchyard with eight 60-kv positions (13 breakers total) and space for one future 60-kv position on the west end. The three eastern positions will provide for termination of three PG&E 60-kv lines, and the western position will provide for the termination of three City of Lodi 60-kv lines and two 60/12kv transformer positions.

In addition to the 60-kv switchyard, the substation will include a 12-kv yard with two 60/12-kv transformer positions and space for a third 60/12-kv transformer position.

POSSIBLE IMPACTS TO BE INVESTIGATED

1. Disruption, displacement or compaction of soil?

Soil disruption will occur on a localized basis as a result of auguring holes for directly imbedded poles, or from excavations required for pole and substation structure foundations.

Some soil compaction may occur as a result of construction vehicles traveling along the right-of-way.

2. Change in air quality or create substantial air emissions?

The construction activity has the potential to create dust problems in the immediate vicinity of the work. Both the movement of construction vehicles along the line routes and the actual digging and grading at the construction sites can produce short-term dust problems.

3. Increase in existing noise levels?

The construction activity may result in an increased noise level primarily from construction vehicles. The problem will cease once construction is completed.

4. Effects on agriculture?

The substation will require removal of approximately three acres of vineyards from agricultural production. The transmission poles will be placed along road or railroad rights-of-way and **should** not require the removal of any agricultural land.

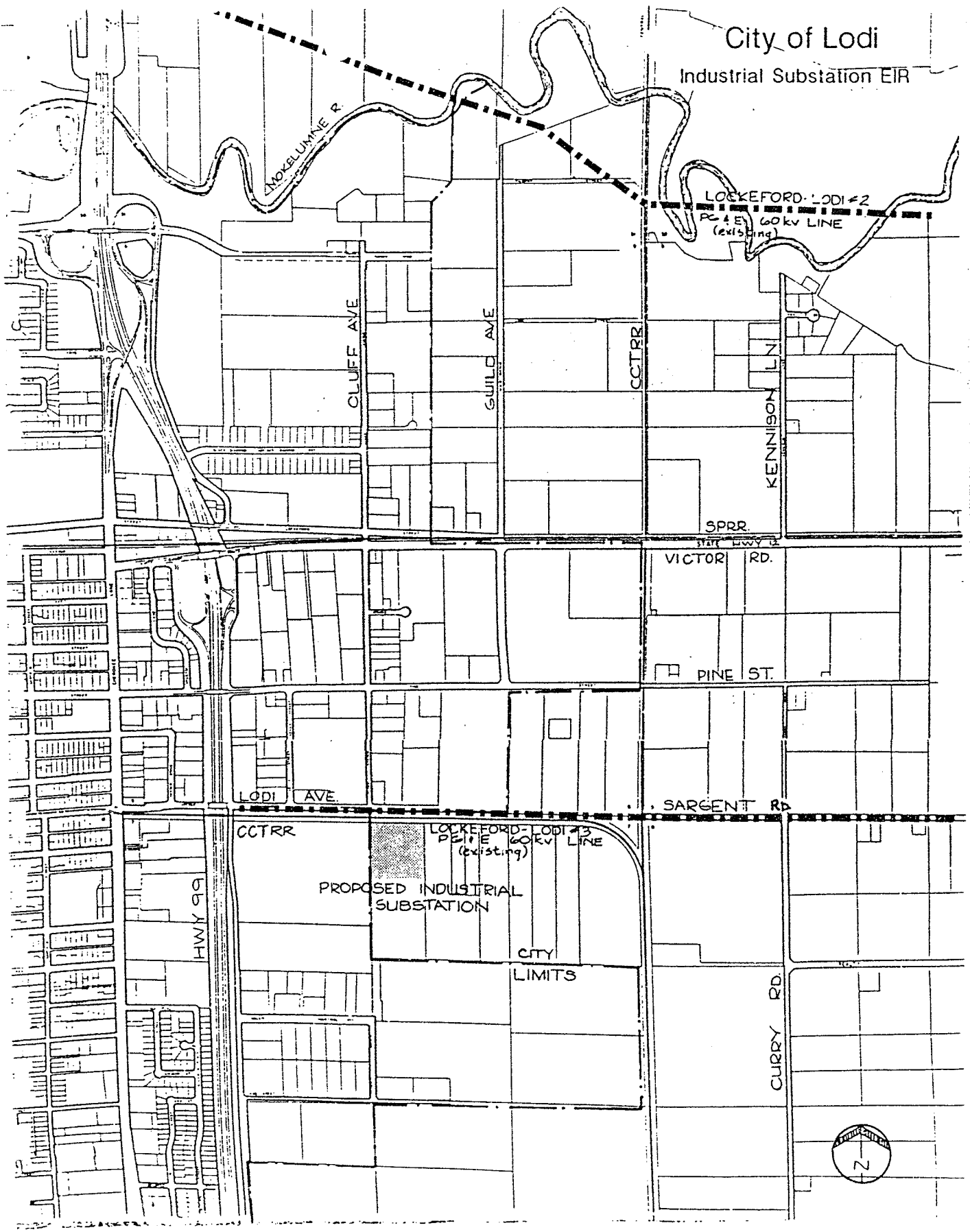
Depending on the route selected for the 60-kv interconnect line between the substation and the PG&E Lodi-Lockeford No. 2 line, some adjacent agricultural operations could be affected. Placement of new poles and lines along the edge of fields could affect current patterns of crop dusting.

5. Visual impacts?

The placement of new poles and lines could affect the visual setting of the area. The poles could be as high as 65 feet and would be visible from the surrounding area. Depending on the route, the new line could be located along a route that already has a pole line. In this case the new poles would replace the existing poles.

The subject area is an industrial area. There are industrial uses both within the City limit; and in the County. Much of the current agricultural areas will be developed with industrial uses sometime in the future. There are also existing power lines along every street and road, including the existing PG&E 60-kv lines. All these man-made features have already impact- the visual landscape of the area.

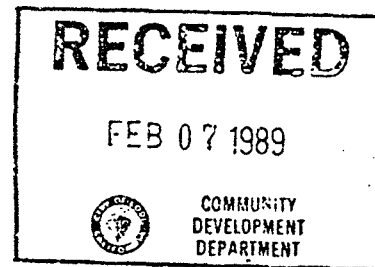
City of Lodi
Industrial Substation EIR



APPENDIX 4

AGENCIES CONSULTED AND RESPONSES

MEMORANDUM, City of Lodi, Public Works Department



TO: Community Development Department
FROM: Public Works Director
DATE: February 1, 1989
SUBJECT: City of Lodi Direct Interconnection Project

The Public Works Department has the following comments on the Notice of Preparation for the EIR on the subject project:

- Noise - will there be noise from transformers or other equipment?
- The Map shows one site; the project description indicates other sites are under consideration;
- The need for services (water, wastewater and drainage) should be addressed;
- Access to the site should be addressed. A railroad crossing may be difficult to obtain since one is not planned on Cluff Avenue at Lodi Avenue. Normal development requirements would require the extension of Thurman Street. Thurman Street alignment should be shown on all exhibits.

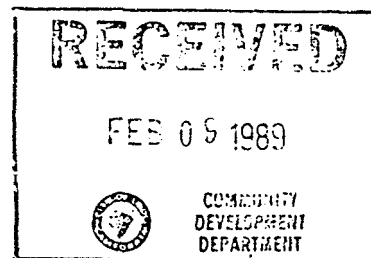

Jack L. Ronsko
Public Works Director

JLR/RCP/jmr

cc: Electric Utility Director

NATIVE AMERICAN HERITAGE COMMISSION

915 CAPITOL MALL, ROOM 288
SACRAMENTO, CALIFORNIA 95814
(916) 322-7791



February 6, 1989

Mr David Morimoto
Associate Planner
City of Lodi
Community Development Department
221 West Pine Street
Lodi, California 95240

re: NOTICE OF PREPARATION/CITY OF LODI
DIRECT INTERCONNECTION PROJECT

Dear Mr. Morimoto:

The concern of the Native American Heritage Commission is in those places where the prehistoric sites underlie areas which have been previously developed and thought to be free of cultural resources.

One problem which takes place regularly throughout the state involves orchards and vineyards, such as the three acres where the substation will be placed. When either of these two are phased out and there is a change of crops, cultural resources under these areas become adversely impacted. The root structure goes down into the archaeological sites.

Due to the long habitation of that region by various Indian tribal groups over extended periods of time, thousands of years, the likelihood of discovering previously undetected cultural resources is a very real possibility which should be addressed in any environmental document.

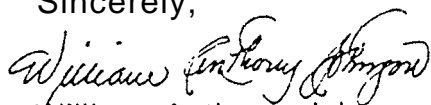
Native American cultural resources have been discovered at depths in excess of eight feet on some recent projects. A buildup of silt over long periods of time have provided a buffer of safe cover between the tops of the archaeological sites and the existing grade. Some had been built upon, still others had been used for agricultural purposes, as in this case. All had been thought to be free of cultural resources.

The California Environmental Quality Act, Appendix K, deals with the discovery of archaeological sites and the procedures to follow. It also contains the instructions to follow when human remains are found during any

phase of development. The Native American Heritage Commission has prepared a pamphlet for us0 by lead agencies, planners, developers and property owners, It provides an easy-to-read breakdown of the California Codes pertaining to Native American human remains and their disposition. I have included a copy of this brochure for your use.

If you have any questions or if you need additional information, please contact this office.

Sincerely,

A handwritten signature in cursive script, reading "William Anthony Johnson".

William Anthony Johnson
Staff Analyst.

Enclosure

cc: John Keene, SCH



CENTRAL CALIFORNIA
INFORMATION CENTER

(209) 667-3307/3127

Department of Anthropology
California State University
Turlock, California 95380

ALPINE
CALAVERAS
MARIPOSA
MERCED
SAN JOAQUIN
STANISLAUS
TUOLUMNE

3/15/89

D. Lynn Askew
Power Engineers Incorporated
P.O. Box 1066
Hailey, Idaho 83333

RE: File #0946L
1345-0.24; City of Lodi
Electrical Transmission Line

As per your request we have conducted a records search for the above-referenced project area located on the Lodi North, Lodi South, Lockeford and Waterloo 7.5-minute U.S.G.S. quadrangle maps. We have conducted the records search for the specific project area and for the general study area as outlined on the maps you provided.

According to our files there are no recorded archaeological or historical cultural resources located within the specific environs of the project or within the project study area. The specific environs of the project and the study area boundary include no areas that have been subject to previous cultural resource investigation. For your information, within a one-mile radius of the project study area, there are four recorded archaeological cultural resources (Native American Indian occupation and burial sites).

According to the National Register of Historic Places, there are three sites nominated to the National Register within the general vicinity of the project and study area, listed as follows:

Lodi Arch (Mission Arch; Pine Street) Ref. No. 80000848 (west of study area).
Morse-Skinner Ranch House (13063 N. California 99); Ref. No. 86001878
Terminus Culling Chute (Tower Park Culling Chute; 14900 W. California 12);
Ref. No. 54001180

Since the project area and study area environs have not been subject to previous cultural resource investigation, it is possible that unrecorded archaeological and historical cultural resources exist within the specific project area and within the study area boundaries. The law requires that if cultural resources are found during project-related activities, all work is to cease and the lead agency and a qualified archaeologist are to be contacted regarding evaluation of the find. Cultural resource investigation prior to the onset of project-related activities would be appropriate.

Thank you for contacting this office regarding cultural resource preservation in San Joaquin County. Billing is attached. Please let us know if we can be of further service.

Sincerely,
L. Kyle Napton, Coordinator


E. A. Greathouse, Assistant

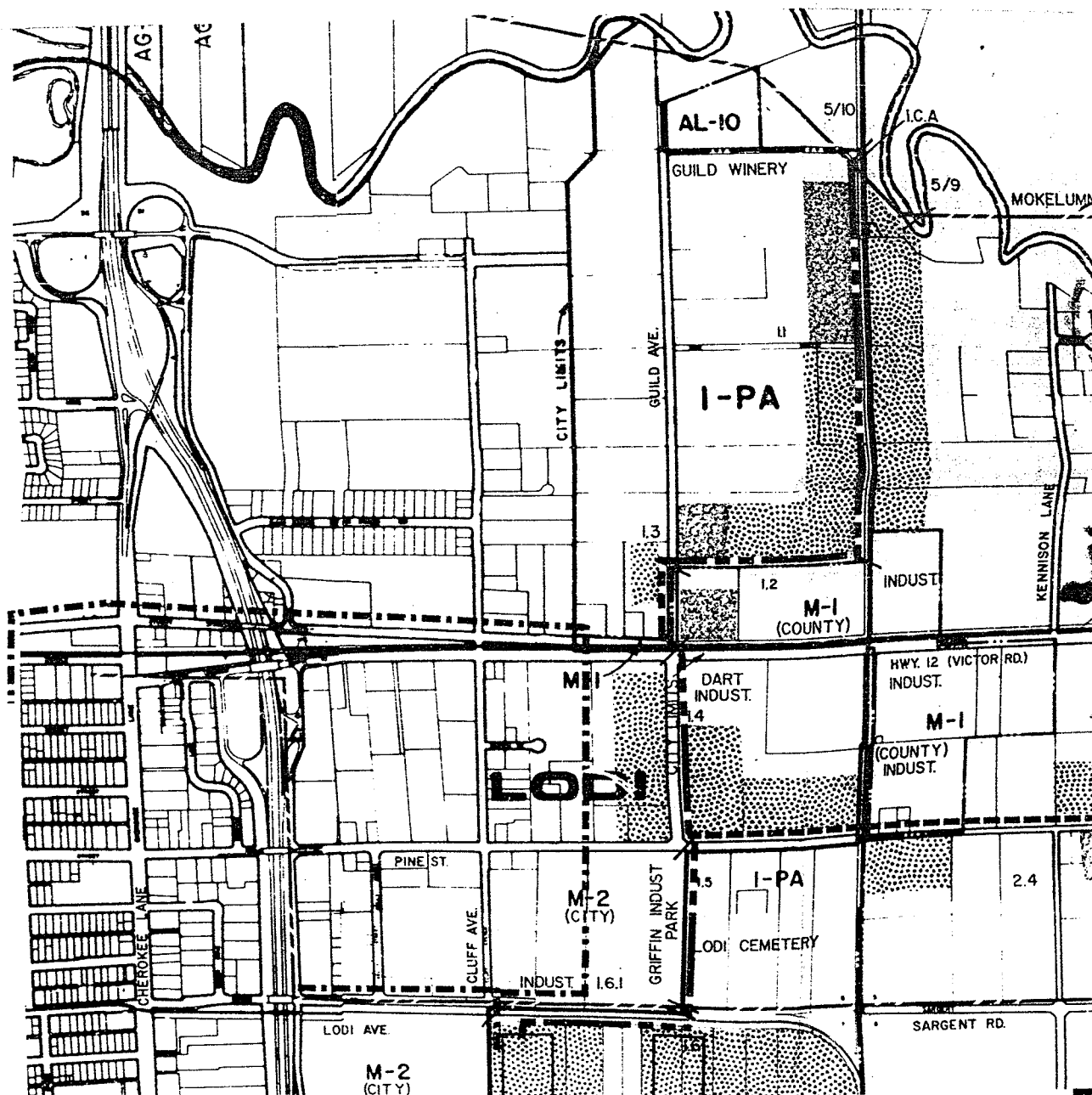
APPENDIX 5

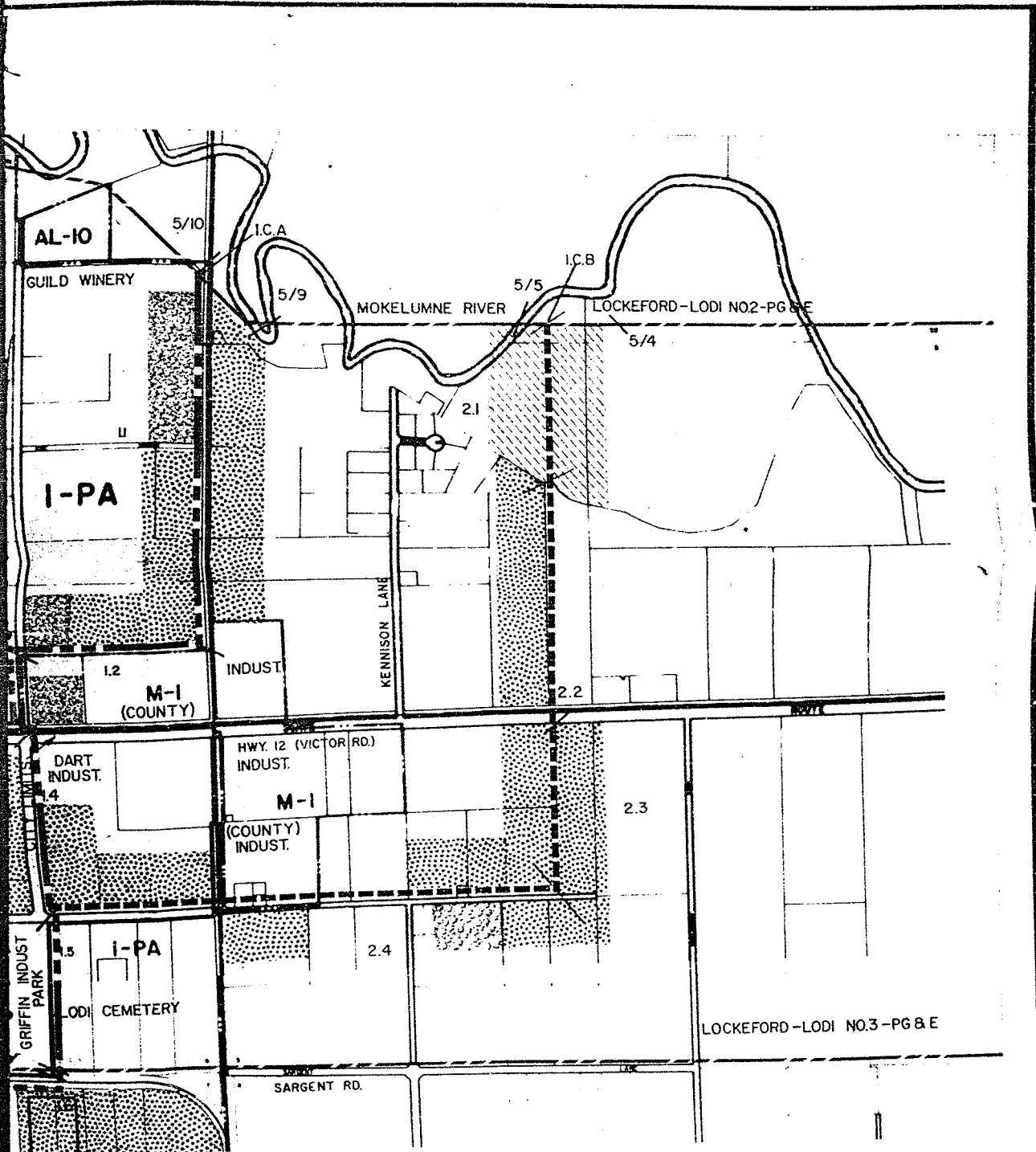
PUBLIC COMMENT AND RESPONSES

APPENDIX 6

ROUTING MAP

THE FOLLOWING DOCUMENT
WILL REQUIRE MORE THAN ONE
SHOT AS THEY ARE OVERSIZED
AND WILL NOT FIT IN THE FRAME.





FUTURE THURMAN ST

SS-1

SS-2

FPA

CITY LIMITS

LEGEND

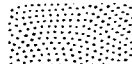


ROUTE 1



ROUTE 2

ROW CROPS



VINEYARDS



ORCHARDS



PG&E LOCKEFORD-LODI
60kV LINE
NO. 2 & NO. 3

1.1 / LINK SEGMENT

CCTCo CENTRAL CALIFORNIA
TRACTION CO. RAILROAD

SS-1 SUBSTATION SITE

I.C.A. INTERCONNECTION POINT

CITY'S NEW 60kV
LINE CONNECTIONS

PRINTED FOR

APR 4 1989

REFERENCE



MK ZONE
REFE



HAILEY

REALTY RD.

MENT

CALIFORNIA
CO. RAILROAD.

ON SITE

CONNECTION POINT

60kV SECTIONS

FOR

889

NCE

[illegible]